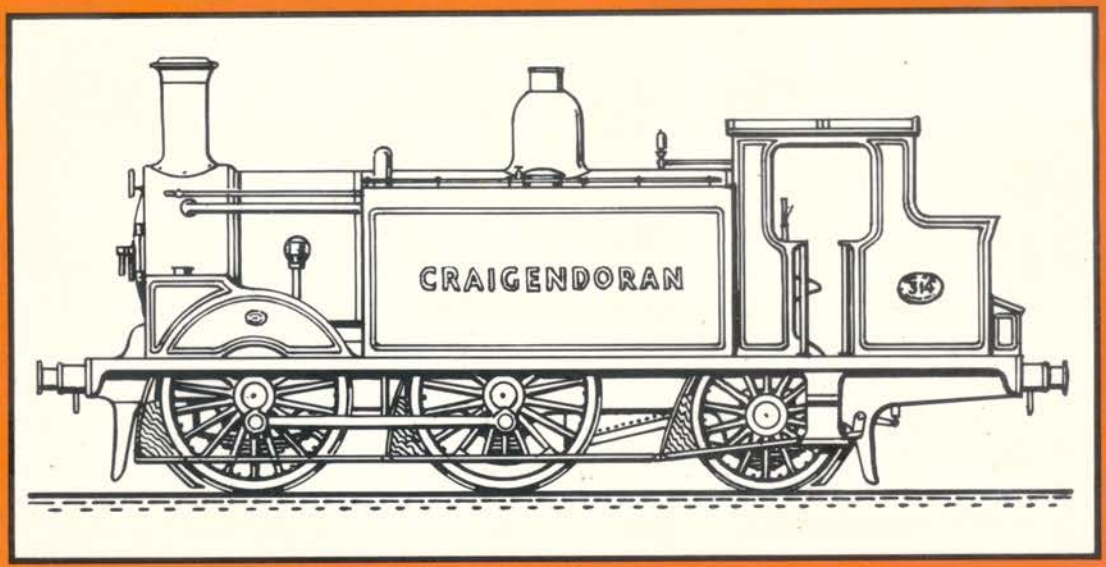
Stroudley Locomotives

A Pictorial History by Brian Haresnape



Stroudley Locomotives

Below:
'Gladstone' Class B1 0-4-2 No 214 (formerly *Gladstone*) in Marsh livery, with large gilt numerals on the bufferbeam and with continuous handrail around the smokebox, (an R. J. Billinton alteration). *Ian Allan Library*

Below:
Standing in Barcombe station 'Gladstone' Class B1 0-4-2 No 178 (formerly *Leatherhead*) carries the Marsh umber livery, complete with LBSCR monogram in gilt on the trailing driving wheel splasher, and makes a fine periodpiece, with the Westinghouse air brake pump in full cry on the firebox side. *Ian Allan Library*

Stroudley Locomotives

A Pictorial History by Brian Haresnape

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Front Endpaper:
Stroudley 'Terrier' Class A1X 0-6-0T No 32662 heads a single coach Havant-Hayling Island train, in June 1951. The engine is in BR lined black livery but without the lion and wheel emblem on the tank side. *R. E. Vincent*

Back Endpaper:
The last day of operations on the Hayling Island branch; 3 November 1963. Class A1X No 32636 stands at Havant, whilst No 32670 runs round the train. Both locomotives have spark-arrestors fitted to the chimneys. Both still survive today, preserved on the Bluebell Railway (No 32636), and on the Kent & East Sussex Railway (No 32670). *J. D. Mills*

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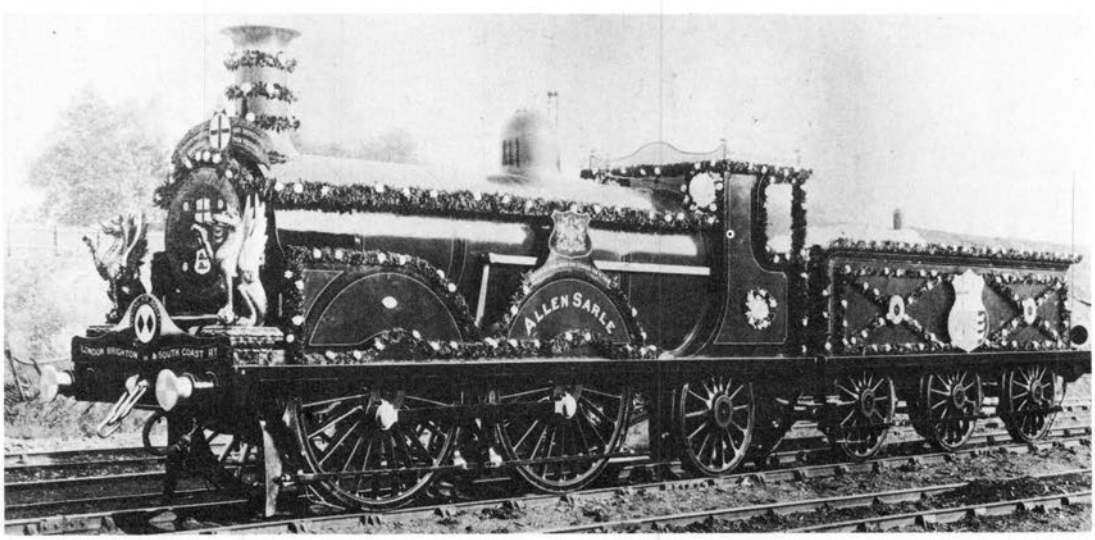
Preface

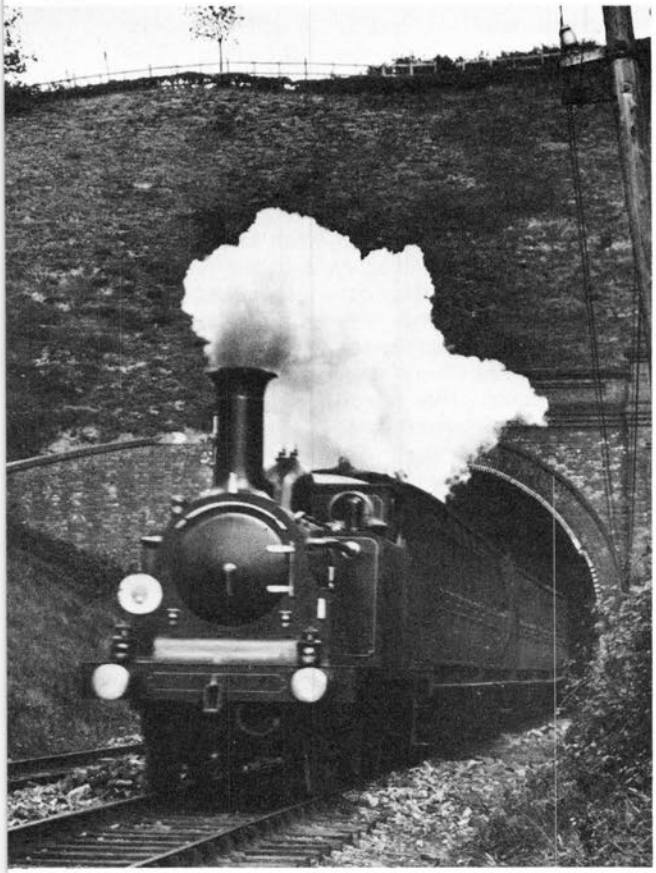
In a book review of one of the earlier titles in this 'locomotives' series, the journal of a certain railway society weighed-in heavily with scorn about the fact that some of the illustrations I had chosen had not only been reproduced before, but had even been previously reproduced *larger*! (My italics.) Dear reader, I must advise you in advance that practically all the illustrations in the present volume have already been reproduced not once, but several times over in some cases, and quite possibly larger. I offer no apology on my part, because I have simply chosen the best pictures available to illustrate the specific parts of the story that they represent. I see no reason to utilise a mediocre photograph when a more brilliant, if well-known, alternative exists. *All* now have a historical value, of course.

The locomotives of William Stroudley were much favoured by the amateur photographers of the day, and a remarkably complete collection of pictures has survived. There can be no doubt that it was the attractive appearance of the Brighton company's locomotives, resplendent in their colourful livery, and with the added attraction of the names they carried, which fired the enthusiasm of those stalwart men who carried about large plate cameras, heavy tripods, and boxes of fragile glass. The quality of much of their work is reflected in these pages, and I must commence this book with a sincere acknowledgement to *all* these pioneer railway photographers. They have made this book possible.

Because such a wealth of photographic material exists, it is now to be found in the hands of numerous private collectors, as well as in the lists of some commercial dealers and some libraries. Many of the prints which exist in different hands are taken from the same negatives, and it is not always clear as to the exact ownership of the copyright of a particular print. In the case of the Ian Allan Library, the bulk of the LBSCR photographs come from the former collection of the Locomotive Publishing Company (LPC), who frequently purchased negatives, or else purchased the rights to make copy negatives from the work of private photographers. The Ian Allan Library also houses the photographic collections of H. M. Madgwick, Rixon Bucknall and others; but it should be observed that these erstwhile collectors purchased many of their prints direct from the LPC! The situation is further confounded by the fact that for many years, postcard prints were sold by various specialist booksellers and dealers, without proper information printed on the back. (Some of these were illegal copy-negatives, but in the majority of cases it was simply a lack of foresight on the part of the photographer himself; who allowed his prints to circulate in this fashion.) I would therefore make it clear

Below:
In honour of the annual outing from Victoria of the LBSCR Station Master's and Inspector's Mutual Aid Society, 'Gladstone' class 0-4-2 No 188 *Allen Sarle* carries a fantastic garland of everlasting flowers, coats-of-arms on shields and even whitewashed coal in the tender. What wonderful evidence of the pride in the job which existed in Stroudley's time! *Madgwick collection/Ian Allan Library*





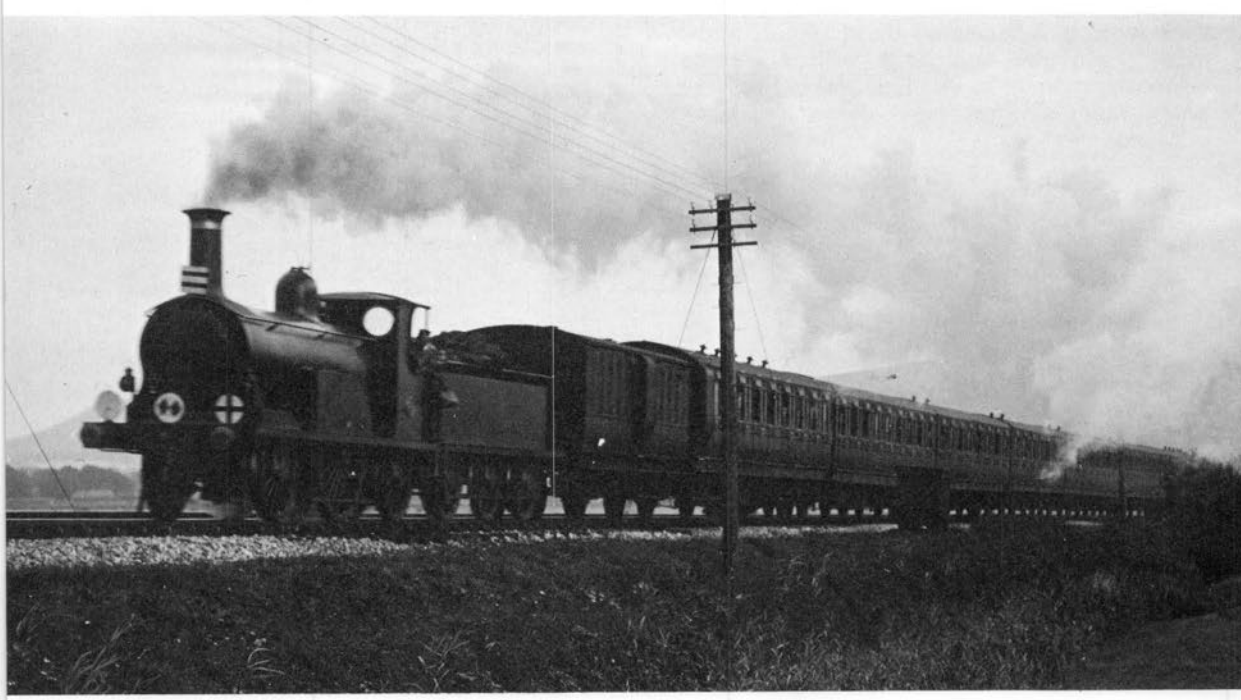
that although I have made every effort to verify the sources of the photographs used in this book, there may be some which are still on the fringe of the statutory 50-year copyright period, and if I have inadvertently infringed someone's copyright, I offer here my sincere apologies*.

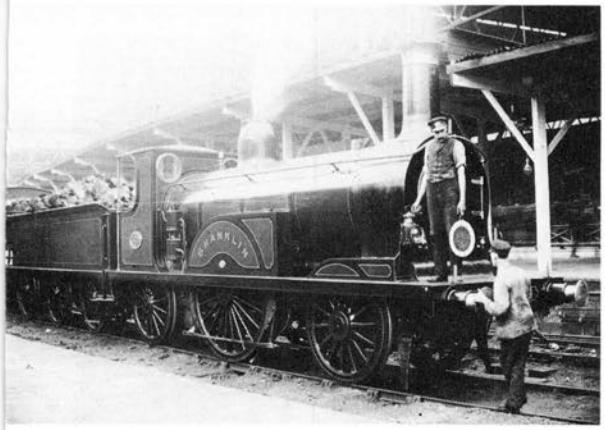
The locomotives of the LBSCR, and of William Stroudley in particular, have been extremely well chronicled, notably commencing with Stroudley's own paper presented to

*A very concise and interesting description of 'The Brighton's Photographic Heritage' is contained in a recent book entitled *London Brighton & South Coast Railway Album* by Klaus Marx. (Ian Allan Ltd.)

Left:
An unidentified 'D-tank' 0-4-2T bursts out of the Groombridge Tunnel, with a train bound for Tunbridge Wells. Early photography of moving trains, as opposed to 'still' scenes of locomotives at rest, must have caused many headaches for the erstwhile photographers! Not least was the lack of an engine number on the front of the Stroudley machines; so lucky indeed was he who had time to glimpse the cabside numberplate as the train rushed by after his shutter closed! *Colourviews Ltd*

Below:
A lovely study of a Stroudley 'Single' on the move, heading a Newhaven train, somehwere east of Lewes. One of E. J. Bedford's classic LBSCR photographs; the original being a small sepia print of great delicacy!
E. J. Bedford/Bluebell RPS Archives





Top:
One of the more charming aspects of the LBSCR photographs that have been handed down to us from Victorian and Edwardian days is the apparent ever-readiness of the railway staff to pose for the photographer. Here the enginemen of Stroudley 'Single' Class G 2-2-2 No 332 *Shanklin* strike suitably posed positions in a 'conversation piece' as the engine awaits its next spell of duty. The continuous boiler handrail was an R.J. Billinton addition; otherwise the loco is still in immaculate Stroudley condition.
Bluebell RPS Archives

Above:
Another carefully posed photograph, taken by the same camera as the previous picture. Here we see Class D1 0-4-2T No 280 *Grinstead*, standing inside Brighton station. On the back of the original sepia postcard print someone has written: 'A Newhaven "spare" loco, the driver is Henry Musgrove and his regular loco was No 461 *Staplefield*'. The gentleman on the left is apparently Mr Musgrove, and his fireman is posed by the smokebox door. Despite being a 'spare' engine – i.e. one that deputised for others – No 280 is in truly spotless condition. Time exposure for the camera shutter explains the fierce steam effects. (The original print is so sharp that every word of the advertisements on the station wall behind can be read through a magnifying glass!)
Bluebell RPS Archives

'the Civils' in 1885, although even before that event his new locomotives had been comprehensively described by *The Engineer*, and in books and articles by Michael Reynolds, between 1877 and 1900. The *Locomotive Magazine* ran a long series, illustrated with line drawings, entitled *The Locomotives of the London, Brighton & South Coast Railway* written by G. F. Burtt, with drawings by H. T. Buckle, which was subsequently reprinted in paperback book form and published in 1903 by the Locomotive Publishing Company (LPC). In 1928 the LPC brought out a companion volume to cover the years 1903-1923, with drawings and text by J. N. Maskelyne. For many years these two volumes were considered to be 'the last word' on LBSCR locomotive design, development and practice. However, in June 1969 the Railway Correspondence & Travel Society (RCTS) published the first of three paperback partworks entitled *The Locomotives of the London, Brighton & South Coast Railway* by D. L. Bradley.

Mr Bradley has succeeded in producing probably the most comprehensive and highly detailed but extremely readable study of its type ever to be published in Britain. No stone goes unturned in his researches, and a good deal of mythology is debunked by careful documentary evidence, because unlike some previous writers, Mr Bradley has had access to the official archives of the British Railways Board as well as to many items in the hands of private collectors. The present author hereby acknowledges his debt to the researches of Mr Bradley; one which must moreover be due from anyone now writing upon this subject. My own series of books are not intended to go so deeply into locomotive history, and their emphasis is considerably more pictorial than is the case with the RCTS publication. The modelmaker in particular is very much in mind, and the illustrations are chosen to provide useful detailing. Technical changes which did not affect the *appearance* of the locomotives are therefore excluded, and the reader in search of such information is recommended without hesitation to Mr Bradley's book. The same invaluable source should be consulted for complete details of the various complex reboilerings, rebuildings and renumberings that occurred over the years. I have, for space reasons, limited such details; giving principally the locomotive numbers as first delivered to traffic, and at withdrawal; although references are, of course, made in the text to important rebuildings, and numbering changes due to amalgamation, nationalisation, or sale to other railway companies.

The long life that was built into William Stroudley's locomotives, aided by the various later reboilerings and rebuildings, meant that quite considerable changes in appearance took place over the years. Thus I have had to select if possible locomotives in original condition to show in drawing form, and can give only generally representative basic dimensions for each class. Once again I would highly recommend Mr Bradley's researches to those in search of more detailed information about any particular class, or locomotive.

This series of books is specifically about locomotives and their designers, but in the

Right:
The most famous of all the Brighton 'posed' pictures is this one showing a proud and dapper William Stroudley standing alongside his 'Terrier' 0-6-0T No 40 *Brighton* after the engine had returned from the Paris Exhibition of 1878, where it had gained a gold medal for Stroudley and the LBSCR. *Lens of Sutton*

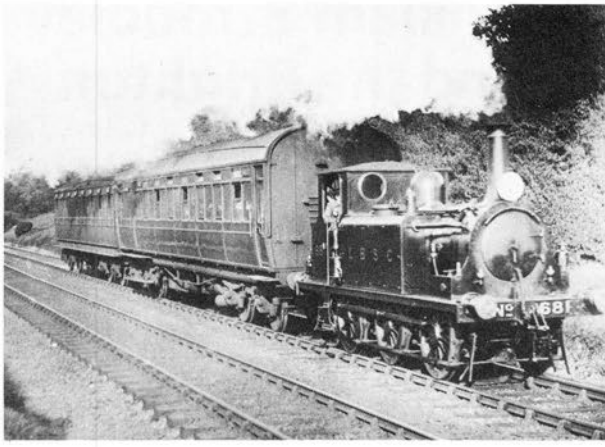
Below:
The popularity of the 'Brighton' did not fade with the passing of the years, and after Stroudley's death the locomotives of his successors were all duly recorded by the amateur cameramen of the day. Many surviving Stroudley locomotives were modified by D. E Marsh, and all passenger engines received his umber brown livery. Whilst changing somewhat their appearance, the livery did not detract from their popularity. Pictured here is 'Gladstone' Class B1 0-4-2 No 197 (formerly *Jonas Levy*), fitted with a Marsh boiler, but retaining the Stroudley chimney. The locomotive is seen passing Balham Intermediate signalbox with a 'Sunny South Express' down special, composed of London & North Western Railway carriages. *LPC*

case of Stroudley it should be remembered that he was also a brilliant marine engineer, who produced some very fine steamships for the Newhaven-Dieppe service. He was also responsible for carriage and wagon design, although some of the passenger stock produced during his *régime* lacked the sense of style – a combination of solid construction and fine art – which graced his locomotives! LBSCR carriages (at least, those I personally encountered in later days) were curiously basic in appointment and comfort. What a contrast they must have made with the splendidly ornate Pullman cars that the Company operated on some important services, but at a supplementary fare of course.

In the Introduction that follows, I have written at some length about the 'mystique' that Stroudley created for all things LBSCR during his lifetime. This remained so strong that even in the final days of steam in Southern England the 'Brighton' had a devoted following. To this band of followers we must all be extremely grateful indeed, because it was their determination not to let the memories fade with the passing of steam (and the line closures of Dr Beeching) that resulted in the creation of the Bluebell Railway; the first British standard gauge passenger-carrying preservation scheme, and one that has since been widely copied. A visit to the Bluebell Railway provides a *live* insight into something of the 'Brighton' character – *albeit* there are some much more modern locomotives and rolling stock also employed on the line nowadays. I have indeed been fortunate in having the assistance of Mr Klaus Marx, the Bluebell Railway's Archivist, during the compilation of this book, in particular with regard to the preserved locomotives.

My sincere thanks are also due to A. B. MacLeod of the Ian Allan Library, for advice and assistance, to Mr J. E. Kite, and to Mr H. C. Casserley for sending a broad selection of photographs from his files, which has helped to fill some gaps. Some of the line drawings which are reproduced herein were originally published in contemporary issues of the *Locomotive Magazine,* or the *Railway Gazette,* but the majority have been specially drawn for this publication by Peter Winding, whose artistic talent is matched by his friendship, and generosity in providing some valuable illustrations.

Brian Haresnape, FRSA NDD
Gassin, Saint Tropez
France.
January 1985



Top:
Few locomotives produced in the 150 years saga of steam locomotive building in Britain have attained the lasting popularity of Stroudley's 'Terriers', and countless photographs exist of them, taken over more than a century of service. A delightful impression of their small dimensions was created when coupled next to one of Marsh's huge 'Balloon-roof' carriages, as seen here behind No 681, in umber brown livery, (formerly No 81 *Beulah*).
H. Gordon Tidey/Lens of Sutton

Above:
A Marsh chimney, but a Stroudley boiler with safety valves on the dome, are carried by 'Gladstone' 'B1' class 0-4-2 No 187 (formerly named *Philip Rose*); exactly the contrary arrangement to that shown in the picture on page 107. Note the raised fairing added to the tender to add coal capacity, (in this case well-heaped), which was another latterday modification. The locomotive carries a large board proclaiming it to be a 'Race Special', and is busy dusting its train with soot as it heads along the Redhill avoiding line; early 1920s. *Madgwick collection/Ian Allan Library*

William Stroudley and the Brighton 'Mystique'

My own introduction to the world of William Stroudley came about in a curious way, and some time before I had set my eyes upon any of his locomotives. As an art student, at the Wimbledon School of Art in the mid-1950s my painting tutor was James Stroudley, a direct descendant, and one moreover given to recounting some of the family folklore. From him I learned of the remarkable colour scheme of the locomotives, and of the extremely fastidious habits of the man himself. Then in 1958, C. Hamilton Ellis published his book, *Twenty Locomotive Men* (Ian Allan Ltd), which included a brief but readable study of the life of William Stroudley. No sooner had I read this with interest, than a part-time teaching post came my way, from the West Sussex College of Art in Worthing. A family move was therefore made to Brighton, and suddenly I was plunged amidst the smoke and reality of what still remained of the once-splendid heart of the LBSCR, and of its locomotives.

One of the most memorable sights to greet my eyes, once the train on which we first journeyed to Brighton had clattered past the Pullman car workshops at Preston Park, and slowed for final approach to the terminus, was almost halucinatory! For there, and in steam, was a Stroudley 'Terrier' still resplendent in full LBSCR golden ochre livery. This, I soon discovered was the former works shunter, then employed as a shed pilot. Lettered *Brighton Works* it then carried a BR number 32635, but the Stroudley livery (reapplied by Bulleid in 1947 and repainted in the mid-1950s) was still in excellent condition. It was a remarkable sight, amidst all the BR black, and some green liveried, latterday locomotive types.

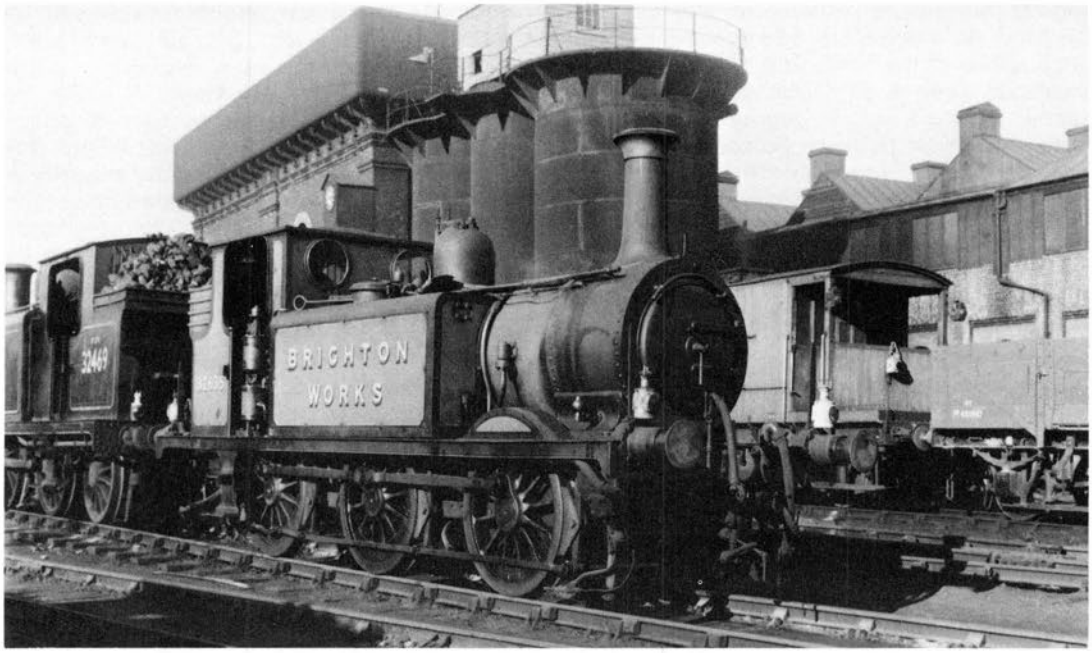
Our new home was a few minutes walk away from Brighton locomotive sheds, and after work, many an evening found me strolling in the direction from whence came much pungent smoke, and occasional sounds of locomotion. Several friends were quickly made in the foreman's office; one being Mr Urie, the son of the former LSWR chief mechanical engineer R. W. Urie. From this source I was kept up-to-date with SR locomotive affairs, and knew the whereabouts of all the surviving LBSCR locomotives; also their likely withdrawal dates. (For by then, the scrap-dealers inroads into pre-Grouping steam locomotives were relentless indeed.)

Thanks to their friendly guidance, I made many pilgrimages to see the last survivors at work, and to photograph them. The Hayling Island branch in particular fascinated me. This branch was still the stronghold of the little Stroudley 'Terriers', due to the weak wooden bridge linking the Island to the mainland. In fact, these amazing little locomotives worked the branch from the 1890s until it was closed in November 1963. Equally fascinating (and a source of numerous illicit footplate trips) was the West Quay tramway branch at Newhaven Harbour. This tramway crossed the River Ouse near the town station, on a swing bridge that also carried the main coastal road, and then wandered around the backs of houses, pubs, warehouses, and boatyards, to finish-up on the West pier. 'Terriers' were the exclusive power for this local freight trip, and even the aforementioned Stroudley-liveried No 32635 *Brighton Works* found employment on it sometimes. The line was closed in August 1963. I mention these two examples because they were particularly picturesque, but of course it was also possible to find the Stroudley survivors on both more important or more mundane daily tasks; sometimes working alongside the latest BR Riddles standard types.

Through the kindness of Brighton railway enthusiasts such as John Kite, then a Brighton bookseller; Maurice Joly in Worthing; and others; I learned the history of the LBSCR locomotives and built-up a collection of postcard prints. The west side platform end at Brighton station had a regular gathering of enthusiasts armed with cameras and notebooks, and there was certainly not much that went unrecorded. The 'following' created in Stroudley's day continued until the end of steam on the Brighton line, and I count myself as one of those few fortunates of my generation that discovered this remarkable attraction just before it was too late.

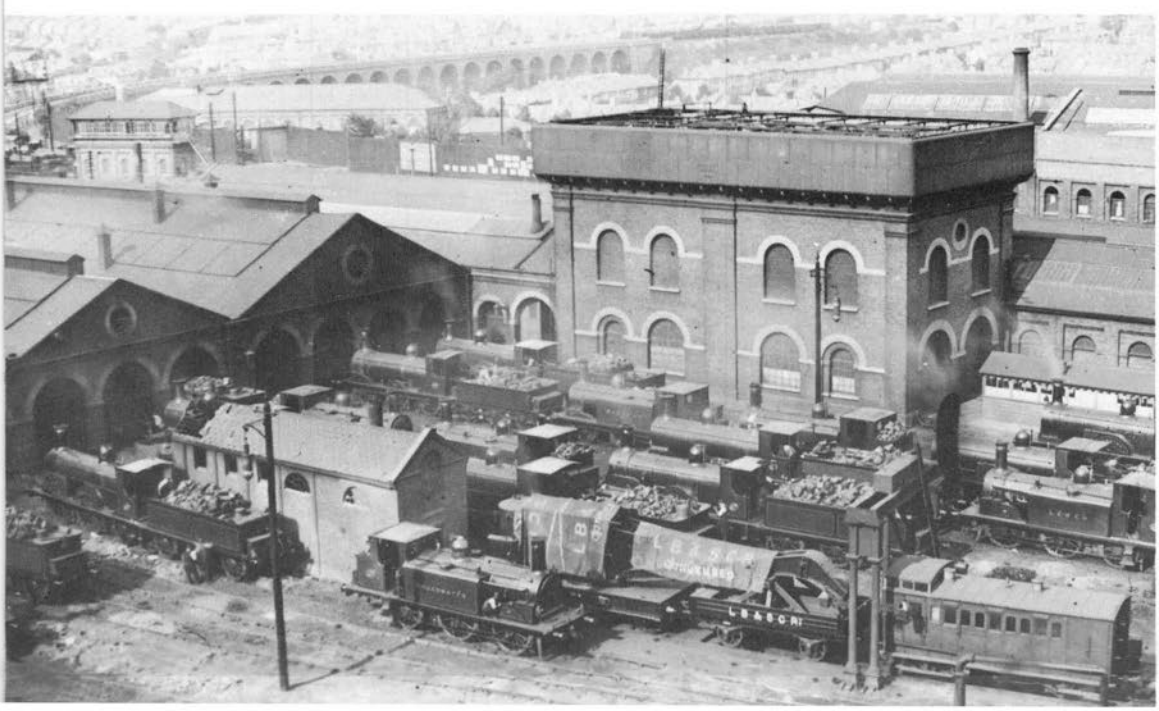
There was something more to the attraction of the Brighton engines than simply the fascination of a live machine. It had to do with *art*, and the appeal of colour, of splendid shapes and forms and a sense of good design married to sound engineering. I will try to explain this a little, before proceeding further with the story.

From this point of view it is a thousand pities that colour photography was not around in the days of Stroudley because in its heyday the LBSCR was certainly a colourful railway, with its gleaming golden ochre locomotives, set



Above:
The 'spirit of Stroudley' remained strong at Brighton until the final days of steam, and a nice touch was the use of his famous livery for the Brighton works shunter. Class A1X 'Terrier' No 32635, (originally LBSCR No 35 *Morden*) worked at Brighton from 1946, (the livery was applied in 1947), until 1963 when it was scrapped. In SR departmental service it was numbered 377s, then DS377; becoming No 32635 when the works were closed down and the shunter returned to capital stock, when it was used as the Brighton shed pilot. Photographed on shed on 4 March 1961. *Brian Haresnape*

Below:
A general view of Brighton shed taken near the turn of the century, with a mixed selection of Stroudley locomotives awaiting their next spell of duty. In the foreground is Class D1 0-4-2T No 235 *Broadwater* and other locomotives that can be identified include Class B1 0-4-2 No 197 *Jonas Levy* (lefthand foreground) and Class D1 0-4-2T No 232 *Lewes* (on the right, with behind it a 'Single'). The white cab roofs of the locomotives are well portrayed in the evening sunlight. The Brighton locomotive works is visible in the righthand background, and the arches of the London Road viaduct are in the lefthand background. *LPC*



amidst the natural beauty of the south of England. As a backcloth, to a moving train the chalk white of the north and south Downs for example, gave a particular character to the scene; adding a certain degree of luminosity. Today we must perforce be content with the contemporary monochrome renderings, (actually many of the original prints are in sepia) but happily, there are a few superbly well-preserved LBSCR locomotives which, having been faithfully restored to their original and colourful condition, can give us an insight into their original and magnetic attraction for the pioneer railway photographers.

This magnetic attraction goes even deeper, and in the final analysis must be recognised as one outcome of the creative genius of this remarkable engineer, William Stroudley, who was without question an *artist* as well as a most able and professional engineer. Art as an expression in three dimensional forms was recognised by Victorian society in terms of architecture and sculpture and perhaps even civil engineering achievements, such as viaducts and bridges, but Stroudley (and some contemporaries) brought attention to the sheer beauty of a well-designed steam locomotive. Every locomotive constructed to his design was a veritable work of art, in which every line, shape and form was part of an harmonious ensemble and one moreover which bore his 'signature' – a Stroudley locomotive was instantly recognisable as such! Much has been written about the elegant chimney style he favoured, but I would also draw attention to his style for the engineman's cab, for small details such as workplates and numberplates, and *above all* to his locomotive livery.

The subject of Stroudley's livery is one which has aroused some controversy in railway circles. The basis of the debate can be ascribed to the inconsistency of describing what is quite obviously a deep yellow shade as a green; the official description being Stroudley's improved engine green. In fact, despite the attempts of some over-romantic authors to ascribe various shades of autumnal flora or vegetation to the colour concerned, the official description is quite logical. It was frequently the practice to use green for boilers, fireboxes and other heat-prone areas on the locomotives of the mid-Victorian period; due to its proven good resistance to heat and generally hard-wearing qualities. Various shades were used by different builders, but a general term was evolved, known as 'engine green' for a mid-to-dark shade. On the Highland Railway, when Stroudley first introduced his own yellow livery, the previous colour was dark green, and this was known on the HR as 'engine green'. (It is perhaps of some relevance to mention here that even to this day, in France, there is a shade of green, on sale to the public, known as *Vert Wagon* – wagon green – which is the exact colour that was used for over 100 years on the majority of French carriages, and some locomotives.)

When William Stroudley decided to change the livery of the HR passenger locomotives he 'improved' upon the existing engine green – hence the description – and used instead a rich golden ochre, (goods locomotives, however, remained in the dark green), and to this he added a very colourful and elaborate style for the borders, frames and lining-out. The golden ochre (a deep mustard-yellow) was offset by areas of both dark olive green and crimson lake, which gave it an additional lustre. To these colours were added *fine* lines of red and white, with a thicker line of black. On the crimson lake frames, yellow and vermilion lines were added. He took this livery with him from the HR to Brighton.

I would like here to add a personal observation about the Stroudley colour known as 'improved engine green'. In January 1963 I was responsible, in collaboration with then BTC Design Officer, the late George Williams, for the experimental application of the Stroudley golden ochre colour scheme to a 'Western' class diesel-hydraulic locomotive; No D1015 *Western Champion* just built at Swindon. The colour was matched exactly to that on the preserved 'Terrier' No 82 *Boxhill*, then in Clapham Museum. (This had in fact been repainted to match the shade on the preserved 'Gladstone' 0-4-2 No 214 *Gladstone*, in York Museum.) The result on No D1015, it was generally agreed, was not displeasing to the eye but not very effective. The reason being that the original livery depended very much indeed upon the elaborate lining-out and contrasting colours of green and claret to give it a richness; whereas the golden ochre alone was quite plain when seen *en masse*, on the bodywork of a large and rather boxlike diesel locomotive. Quite clearly the secret of the Stroudley livery was its very elaborate and contrasting finish. To have applied a similar lining-out scheme to the diesel locomotive – apart from being prohibitively expensive – would have been completely bizarre!

A final word upon the subject of Stroudley's 'improved engine green'. I have chosen to call it 'golden ochre'. Whereas, Hamilton Ellis has described it as an 'orange ochre (not *quite* mustard)' and goes on to state that a minute proportion of green was included in the

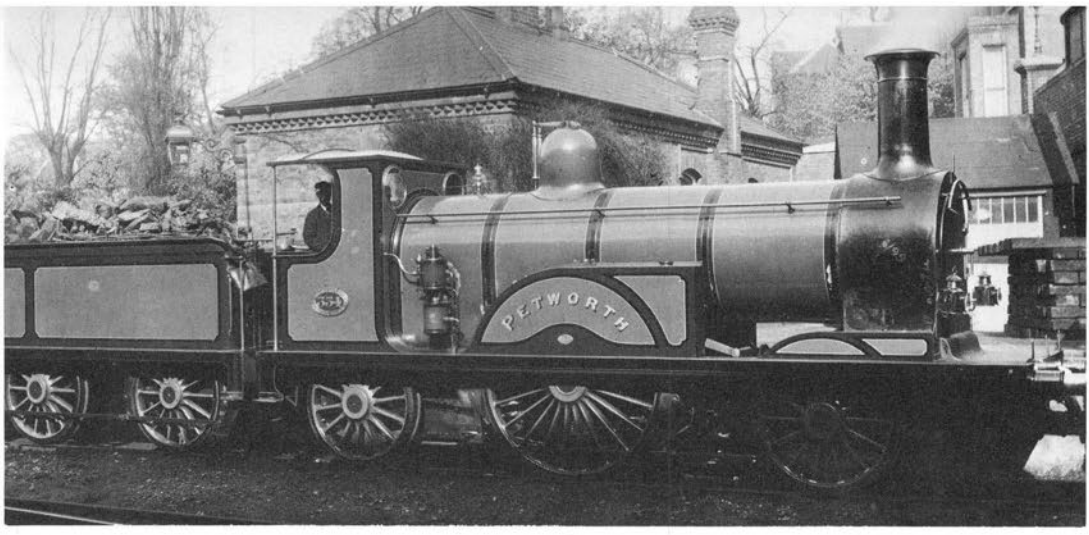
Above:
The Hayling Island branch was a 'Terrier' haunt almost from its opening day until the line was closed in 1963. Class A1 No 663 *Preston* makes a fine picture on a train of four-wheel carriages at Langston in 1903.
Ian Allan Library

Below:
In rebuilt form, as Class A1X, and with a spark arrestor on the chimney top, No 32650 (originally No 50 *Whitechapel*) heads a packed three-coach train at North Hayling on 2 November 1963; one day before the closure of the line.
R. A. Panting

mixture, and that as well as being called 'improved engine green' it was apparently also called at Brighton more simply 'Scotch green'. This latter name of course simply referred to its HR origin – whence it had come together with Stroudley himself, to England. My belief is that the basic pigment was a rich deep yellow ochre with a hint of green, perhaps enhanced by the natural brown of linseed oil to become more golden in colour; the final layers of varnish producing the truly golden effect. My advice to anyone wishing to see (as close as the natural effects of ageing will permit) the *true* colour, is that they make a personal pilgrimage to Brighton Museum and Art Gallery to inspect the quite superb model of the 0-4-2 *Como* made by Dr Bradbury Winter (a local Brighton doctor in Stroudley's day), and which gives an absolutely *contemporary* record. It is interesting to note, however, that even on this delightful model there is a slight discrepancy in the colour between the ochre on the engine and the ochre on the tender. This is because the model took a very long time to complete and the engine portion was painted before the tender. As the good doctor evidently discovered, the Stroudley golden ochre was a most difficult colour to match! Contemporary photographs are somewhat misleading in the *tone* of the ochre, because in bright sunshine it appeared light, and on dull days quite dark in tone.

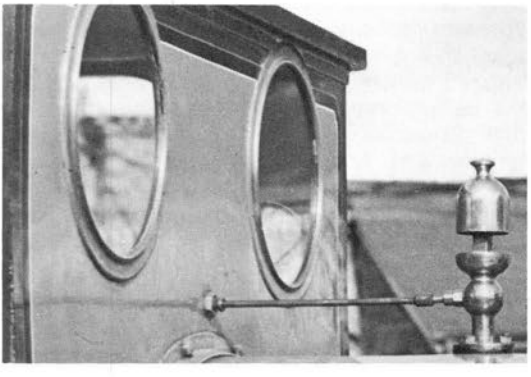
Perhaps it is precisely this sense of mystique, attaching to the livery, which has helped to create the Brighton legend! If so, one must accept that it came about largely because of the personal influence of William Stroudley; artist/engineer extraordinary.

Concerning the man himself, so much has already appeared in print that I feel it only necessary to give a brief précis of his career, as a reminder; on page 22. How tragic was his untimely death, when approaching the pinnacle of his career, whilst on a visit to France, in December 1889. It undoubtedly robbed the LBSCR, and indeed the whole of the British railway engineering circle of one of its most able designers, and it must have been difficult indeed for the 45-year-old Robert Billinton to follow in his footsteps. Stroudley's transformation of the previously poor state of the LBSCR locomotive stock, and its workshop and shed facilities, is legendary; as is also his insistence upon smartly turned-out locomotives and men. He personally took an interest in the day-to-day running of his locomotives and the welfare of the staff. He must have been greatly missed by a great many people.



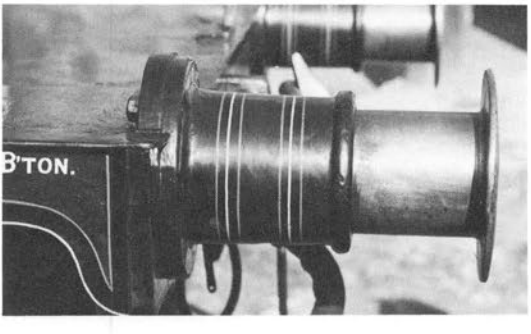
Below left:
Another line where the lightweight 'Terriers' were habitually employed was the former Kent & East Sussex Railway, which had owned two secondhand 'Terriers' prior to being absorbed by British Railways. In BR days the Southern Region continued to work the line with 'Terriers', and No 32678 (originally No 78 *Knowle*) is seen here shunting a 'mixed' train at Rolvenden; the 8.50 am from Headcorn to Robertsbridge, on 28 November 1953. Despite closure by BR, part of the line has been saved and once again echoes to the sturdy 'bark' of Stroudley's 'Terriers' from time to time! *N. W. Sprinks*

Above:
Stroudley's famous golden ochre livery, with its elaborate and colourful lining-out and edging, undoubtedly gained popular approval, and made the elegant lines of his locomotives even more eye-appealing. 'Single' No 334 *Petworth* positively sparkles in the weak winter sunshine, as it stands at East Croydon on station pilot duty; photographed sometime around the turn of the century. *Bluebell RPS Archives*



Above right:
Attention to detail was a characteristic of both William Stroudley the man, and his locomotives. The brass numberplates were of a standard oval design, with the numerals in raised figures with a dark blue background, whilst the name of the railway was in sunken lettering around the edge, filled with black to make it read. No 82 *Boxhill* is the 'Terrier' officially preserved by the National Railway Museum. *S. C. Townroe*

Centre right:
Cab front and whistle detail of No 82 *Boxhill*, as restored for preservation. *S. C. Townroe*



Right:
Close-up of the front bufferbeam on restored Class A1 'Terrier' No 82 *Boxhill*, showing the B'ton (for Brighton) shedcode painted in white upon the claret framing. The lining-out was in yellow, black and white upon the claret. *S. C. Townroe*

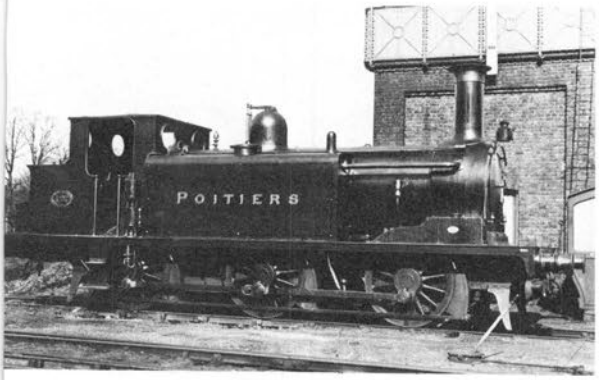
Stroudley produced a whole stud of superb locomotives, culminating in the magnificent 'Gladstone' 0-4-2s, but in many respects, the most remarkable design he produced for the LBSCR was the small 'Terrier' (or 'Rooter') 0-6-0T, introduced in 1872, specifically for the South and East London suburban railways. A locomotive of small size and weight was required, but powerful enough to run the local passenger trains to schedule. What emerged from Brighton works in answer to this demand was indeed a remarkably small, but extremely willing machine, which quickly became very popular with the enginemen and passengers. What nobody could have foreseen was that some of the class would still be in steam 110 years later! Indeed, the story of the class is worthy of a book all to itself (one small paperback has appeared, published in 1969, entitled *The Brighton Terriers* by C. J. Binnie; The Ravensbourne Press,) and the present-day location of the survivors is listed in Appendix 1, for the reader's interest. What never ceases to surprise me is that there is no commercial scale model marketed of this highly attractive and popular steam locomotive. It could be finished in any one of a score of authentic liveries, up to and including BR lined-black! The 'Terriers' have a prominent part in this present volume simply because their history has been so long, varied and interesting.

It is perhaps inevitable that a good deal of speculation has occupied the minds of many enthusiasts, since Stroudley's death, as to what this great man had in his mind for the future locomotive stock of the LBSCR. Most of the debate seems to revolve around the fact that Stroudley did not use bogies for his locomotives. It could be argued that he was very sensible not to add such a complication to machines designed for working at (comparatively) modest speeds over such a small and direct, route mileage. His designs were tailormade for their work; and certainly performed well. The question remains, however, as to what would have emerged next from the drawing-board as trainloads increased and timings became keener, if Stroudley had continued in office for another 10 years or more. Stories have been handed-down about 2-4-2 tender and tank engine enlargements of the 'Gladstone' design, but nobody seems to have come up with any really concrete evidence in their researches, and no official drawing appears to have survived in the archives. Certainly a 2-4-2 tender locomotive was a logical possibility; provided the leading wheels could be made to ride safely at speed. But as just remarked, no drawing has been found, and this could well be just a myth created by someone's fertile imagination! Another idea, and one given authenticity by Mr Bradley's researches, was investigated by D. E. Marsh (who succeeded R. J. Billinton), in 1907. Marsh apparently considered the 'Gladstone' class could be improved by rebuilding them as 4-4-2s. He costed the procedure at £1,870 per locomotive, and this was evidently too expensive; the scheme being shelved. If he had proceeded with the idea the locomotives would have retained the inside-cylinder layout. No drawing appears to have been made for this proposal.

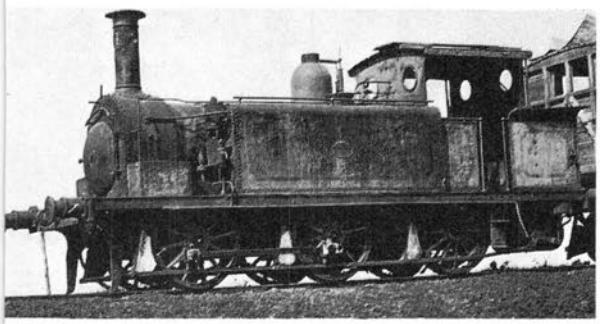
Because Stroudley had such firm ideas upon the subject of standardisation, (certainly no bad thing, after the previous, chaotic years of John Chester Craven, when no two LBSCR engines ever appeared to be alike!) he tended to retain some features longer than perhaps progress by others, elsewhere, was indicating to be desirable. One such feature, already observed, was his apparent refusal to use bogies under his locomotives. I have already given my opinion that he had sound reasons for this, but personally I think that if death had not intervened, he would finally have accepted the idea of a leading bogie for passenger engines; for how else, one wonders, could significantly larger boilers be safely carried? And there was clearly a need for larger boilers by the year 1890.

In fact, until 1895, the largest express passenger engines on the LBSCR were six-wheelers, of three different arrangements: 2-4-0, 2-2-2 and 0-4-2. The 0-4-2 layout being the most modern. The size of the turntables at depots and stations was one factor which limited locomotive size accordingly. When Robert Billinton envisaged a bogie 4-4-0 express passenger engine, it was necessary to commence with an expensive programme of renewal, placing larger turntables at the principal depots. This was certainly one reason why Stroudley had not increased the wheel arrangement during his lifetime. Sad to relate, Billinton's first Class B2 4-4-0s were not a great success; being curiously under-boilered. He soon recognised his mistake, and later engines appeared with a much more satisfactory steaming ability. On the credit side these earliest 4-4-0s were extremely pretty to look at! On the debit side the little Stroudley 'Singles', they were supposed to replace, were every bit as good on the road!

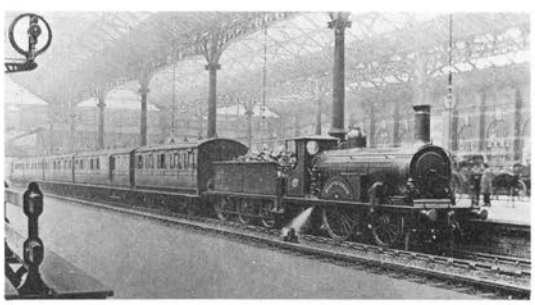
At the time of his death Stroudley was working on a new design of powerful 0-6-2T for local goods traffic and heavy shunting. I have included this in the book (Section 15, page 113)



Left:
For his goods engines Stroudley used a dark olive green livery, with black lining. Sometimes this did not photograph very well, especially when the green had darkened with age. Class E1 0-6-0T No 127 *Poitiers* is illustrated in the goods engine colours. *LPC*

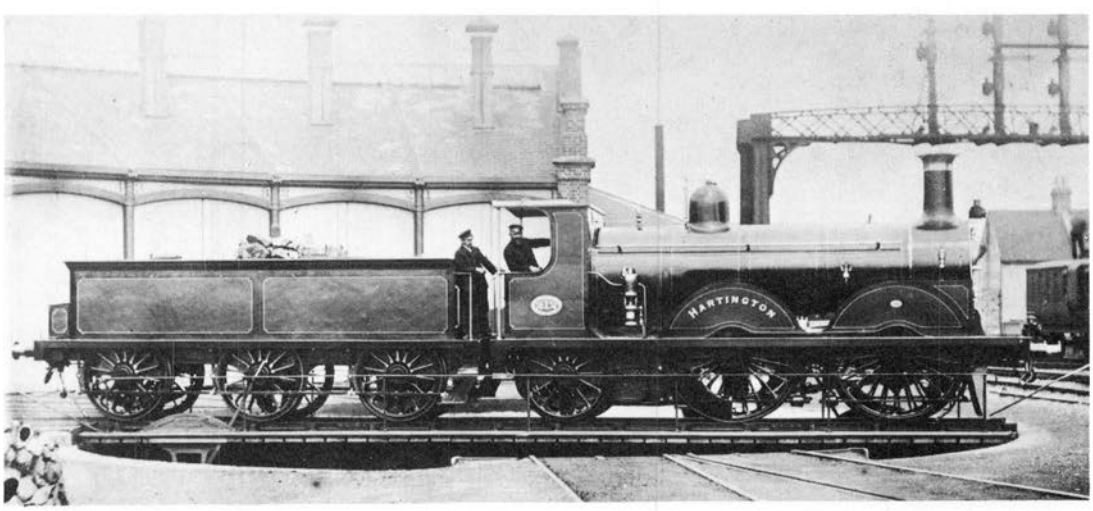


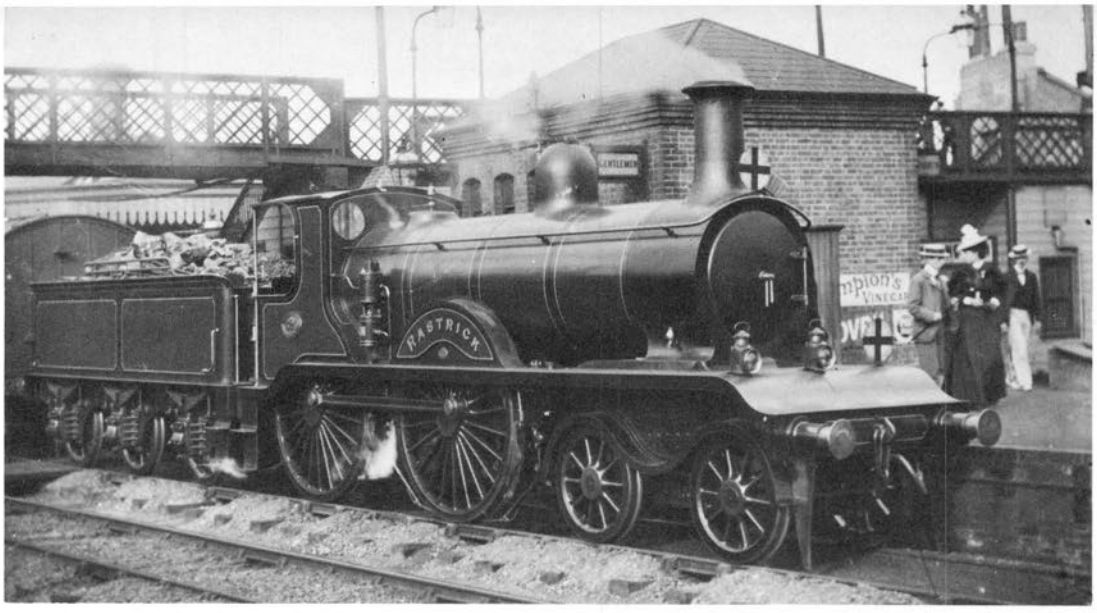
Centre left:
Imitation is the sincerest form of flattery, it seems! The Stroudley 'Terrier' design was closely copied by the New South Wales Railways in 1875. They were the first side tank 0-6-0Ts specially built for Sydney suburban traffic, and had slightly larger coal bunkers than the LBSCR design. Nos 67-70 were built by Mort & Co, and Nos 71-74 by Vale & Lacey; both local Sydney firms. Known as the '67' class they worked passenger trains on the main suburban line, and hauled Hurstville line trains when it opened in 1884. Later in their lives five were fitted-out as crane tanks, for coaling and ash-handling shed duties. Some examples survived until 1938. Illustrated is No 71, at South Grafton in November 1913. The Stroudley parentage is obvious!
Australian Railway Historical Society



Below left:
All William Stroudley's passenger locomotives for the LBSCR were of six-wheeled layout; either 0-4-2, 2-2-2 or 2-4-0. Perhaps the most elegant were the Class G 2-2-2 'Singles', as depicted here with No 329 *Stephenson* standing at Victoria with a five coach train. The driver is busy with the inside valve gear, while 'Hansom' cabs and their drivers stand in the roadway on the right awaiting work.
Ian Allan Library/Bucknall collection

Below:
One factor influencing the wheel arrangements of the Stroudley locomotives, (and the lack of bogies on his larger engines) was the restricted diameter and clearance of the existing turntables. It can be seen from this photograph of Class B1 0-4-2 No 212 *Hartington* standing on the turntable, that the amount of overhang at each end was pushed to the limits in this particular case.
A. B. MacLeod collection



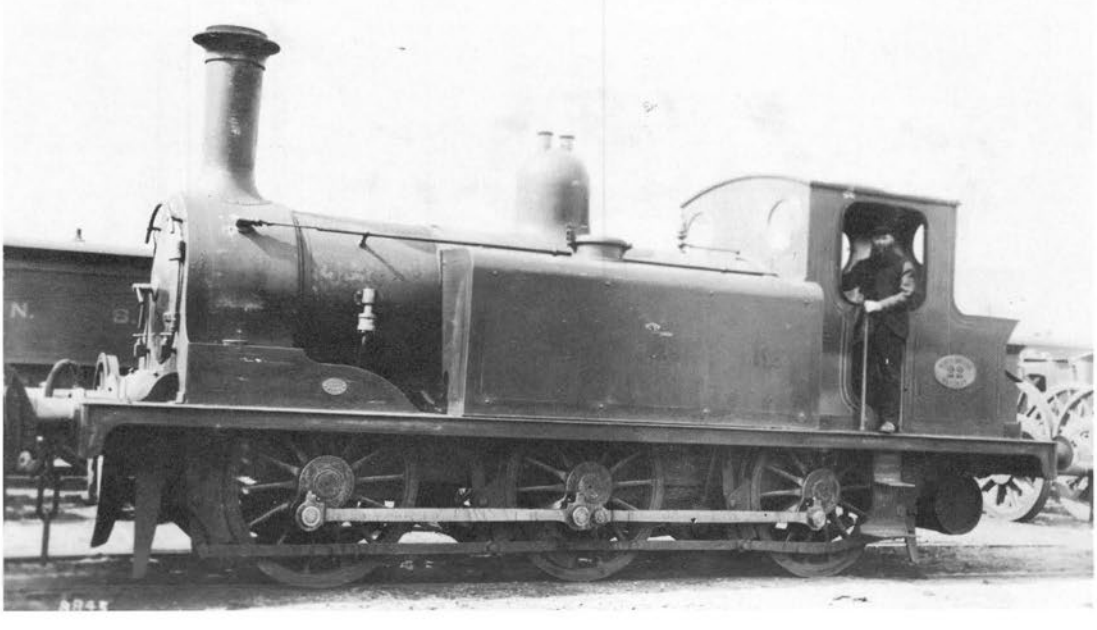


although the design, as actually built, was modified in some respects by R. J. Billinton. It does serve to show that Stroudley was aware of a need to increase the *size* of locomotives for use on the LBSCR system.

In a companion volume to this series* I have described the strong influence that Stroudley had upon Dugald Drummond. At one stage the two men worked together on the Highland Railway, and when Stroudley moved to Brighton, Drummond soon followed him. Then when Dugald Drummond had achieved the seniority needed to become a Locomotive Superintendent himself, he moved to the North British Railway, taking such a strong Stroudley influence with him that he even copied the famous livery and commenced the practice of locomotive naming! Dugald's earliest locomotive design was a slightly larger version of the 'Terrier'; followed by an almost slavish copy of the Stroudley 'Single' *Grosvenor*, and a version of the 'C' class 'Jumbos'. Of interest is that when he copied Stroudley's 'D' class 0-4-2T (making it slightly larger) he produced an engine that was overweight on the trailing axle, and he was forced to substitute bogies within five years. Would, one wonders, a similar problem have arisen on the LBSCR if Stroudley had lived to enlarge his own 0-4-2Ts?

Once having found his feet (or should I say bogies) as a designer, Dugald Drummond, and his brother Peter, spread the Stroudley influence strongly across the railways of the British Isles in a way that fate had denied to

**Drummond Locomotives*, B. Haresnape, Ian Allan Ltd.

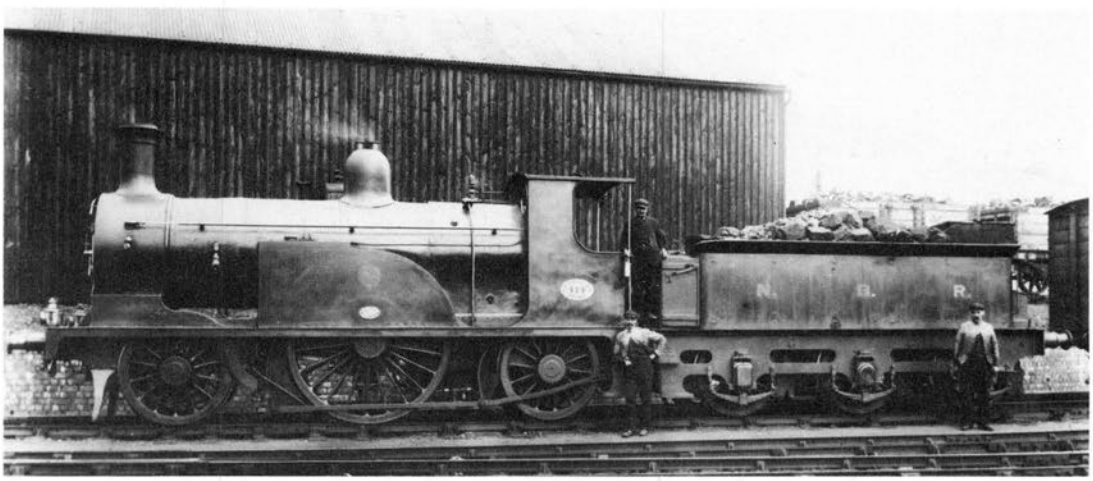


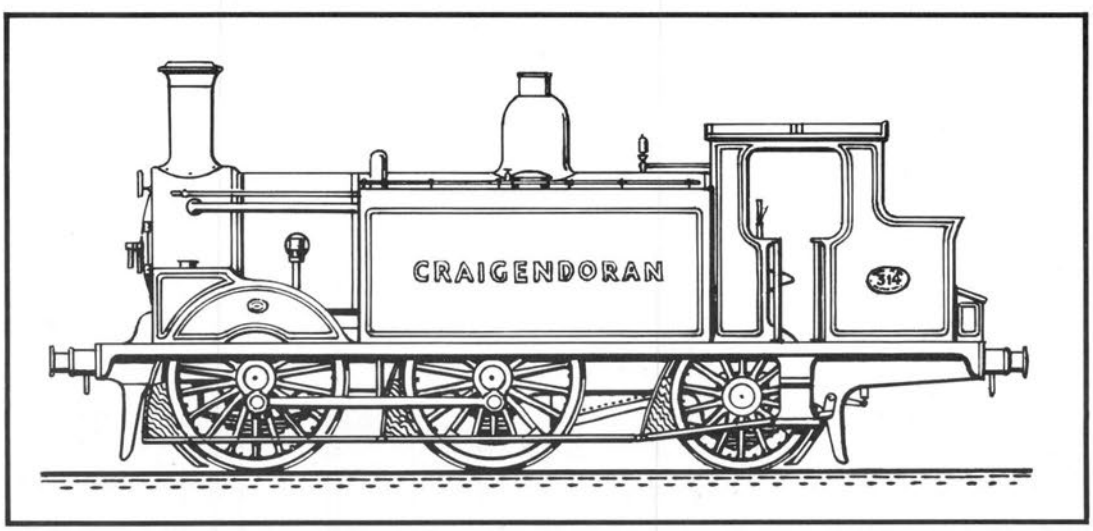
Left:
When Stroudley's successor, R. J. Billinton, introduced his first bogie passenger engines, he was forced to enlarge the turntables, at considerable expense to the LBSCR. His first 4-4-0s, the 'B2' class, nicknamed 'Grasshoppers' were elegant machines, and carried the Stroudley livery very gracefully, but they proved to be under-boilered and no great advance over the Stroudley 'Singles' they were supposed to replace! No 320 *Rastrick* was photographed at Clapham Junction.
Locomotive & General Railway Photographs/Bluebell RPS Archives

Below left:
The young Dugald Drummond was a fervent admirer of Stroudley's locomotives, and his first locomotive design produced for the North British Railway in 1875, was a close, but slightly larger copy, of the 'Terrier' 0-6-0T. The chimney, dome and safety valve were to Drummond's taste, but the Stroudley influence predominated. Pictured here is No 22, built at Cowlairs in 1878. They did not last nearly as long as Stroudley's engines; all going by 1926. *LPC*

Below:
Dugald Drummond also echoed Stroudley when he built two 'Singles' in 1876 for the NBR, closely copied from Stroudley's 1874 2-2-2 No 326 *Grosvenor*, the main difference being in the style of the cab roof and the use of Ramsbottom safety valves on the dome. The tender design, with underhung springs, was a direct copy of Stroudley's first type of LBSCR tender. Depicted here is No 474. *LPC*

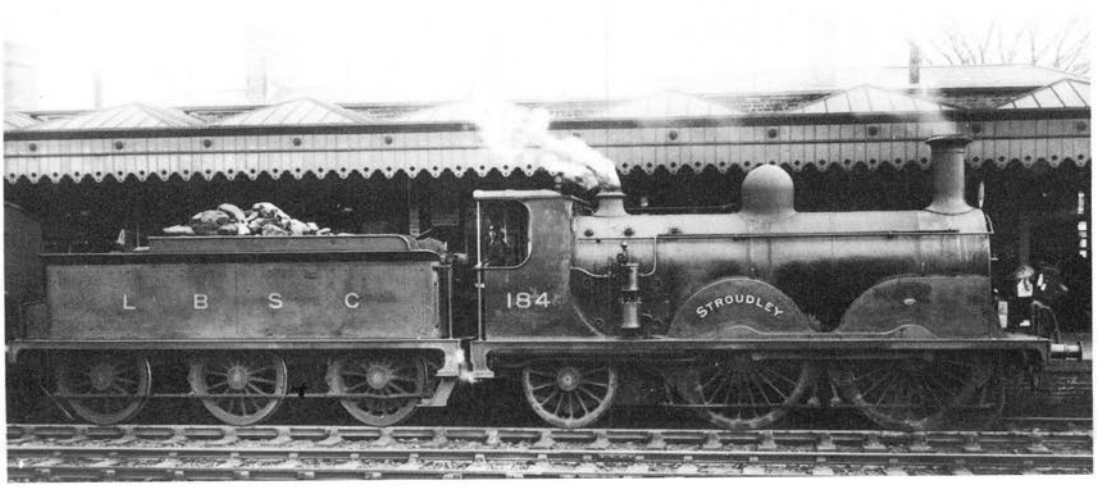
Bottom:
Of particular interest was D. Drummond's version of Stroudley's 'D1' class 0-4-2T; produced in 1877 for the Clydeside services of the NBR. An enlargement of the original, it proved to be overweight on the trailing axle, and Drummond substituted bogies after some five years of service; thereby producing the 0-4-4T layout that became popularly associated with his name. The drawing shows the outline of the original 0-4-2T design; six were built at Cowlairs in 1877. *Peter Winding*





Below:
By the time D.E. Marsh took over Brighton locomotive affairs, many of Stroudley's locomotives were beginning to show their age; in particular by the condition of their boilers. Marsh provided new boilers for many of them using a separate dome and Ramsbottom safety valve arrangement, and replacing the Stroudley copper-cap chimney, whenever worn out, by his own cast iron design. Looking very spruce in SR Maunsell green livery, Class D1 0-4-2T No 2605, fitted for auto-train working, (note additional hoses on front bufferbeam), stands at Ford Junction station. The engine has a Marsh chimney and boiler.
O. J. Morris/Bluebell RPS Archives

Bottom:
In 1906, 'Gladstone' class 0-4-2 No 184, formerly *Carew D. Gilbert*, was renamed *Stroudley* in honour of the designer; at the same time receiving the new Marsh umber brown livery. Later, Marsh rebuilt it with his own boiler design and chimney, as seen in this photograph taken at Redhill station. The coping to the coal space on the tender was an addition made later by L. B. Billinton, who also added a well-tank underneath, to increase fuel capacity.
O. J. Morris/H. C. Casserley collection



Locomotives designed by William Stroudley for the LBSCR.

	Built	*Number*	*Class total*	*Type total*
0-4-2s				
D class (D2)	1876-83	300 to 313	14	
B class	1878-80	208 to 213	6	
B class (B1)	1884-91	172 to 200, 214 to 220	36	
				56
2-4-0s				
B class	1872-76	201/2/4/5/6/7	6	
				6
2-2-2s				
G class	1880-82	327 to 350	24	
F class (G)	1877	325	1	
B class (G)	1874	326 (ex-No 151)	1	
				26
0-6-0s				
C class	1871-74	401 to 420 (ex-Nos 77 to 82, 83, (85), 84 to 96)	20	
C class (C1)	1882-87	421 to 432	12	
				32
0-4-2 tanks				
D class (D1)	1873-87	1 to 34, 221 to 299 (Nos 298/9 ex-35/6), 351 to 362	125	
18 class	1871	18, 21	2	
				127
0-6-0 tanks				
E class (E1)	1874-91	85 to 156, 159 to 164	78	
E special class (E2, E1)	1884	157	1	
A class (A1)	1872-80	35 to 84	50	
				129
0-6-2 tank				
F class (E3)	1891	158	1	
				1
		Total locomotives		*377*

Later class descriptions are given in brackets; this was a modification to Stroudley's list made by D. E. Marsh in order to include the Billinton classes. The changes are noted at the head of each Section in the book, whilst the class descriptions used in the captions to the illustrations usually refer to the class description as carried by the locomotive at the time the picture was taken.

Stroudley himself, because of his untimely death. There was also some cross-fertilisation of ideas between Samuel Waite Johnson, and Stroudley and Drummond (although history has it that their *personalities* clashed badly), and some of Johnson's work on the Midland Railway undoubtedly influenced Robert Billinton when the latter succeeded Stroudley at Brighton; having been S. W. Johnson's Chief draughtsman at Derby immediately beforehand.

The locomotives described in this book are those actually ascribed to the name of William Stroudley (see table) and built for service on the LBSCR. It should be noted that quite a considerable amount of his early work involved the reconstruction of some of the many existing and varied locomotives of the Craven era. A selection of these rebuildings is illustrated in the next chapter, and it can be seen that most were improved in looks as well as in usefulness!

Early influences and progress

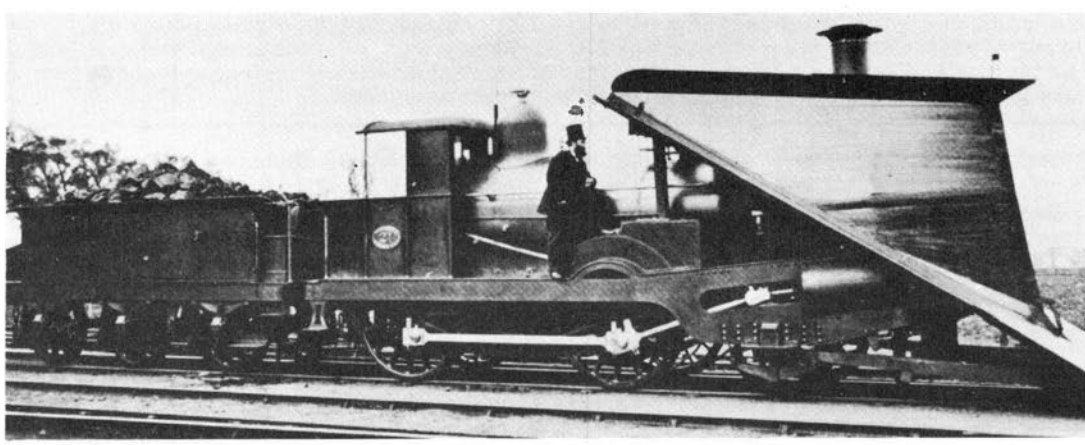
In his book *History of the Southern Railway*, C. F. Dendy Marshall* wrote that (I quote): 'William Stroudley, when the directors decided to appoint him locomotive superintendent, was rather a "dark horse".' By this he implied that Stroudley's career until that time had not attracted a good deal of attention, mainly because there had been little scope for his abilities in his previous jobs. Whilst it is certainly true that his years at Brighton – sadly curtailed by his sudden death whilst on a visit to France in December 1889 – gave Stroudley plenty of scope to prove his worth to the LBSCR directors, I think it is incorrect to think of Stroudley as a 'dark horse'.

Born on 6 March 1833 at Sandford, Oxfordshire, Stroudley commenced his career as an apprentice to John Inshaw of Birmingham in 1847. The next year he went to take care of a stationary engine at the Vulcan Foundry, Birmingham and later performed a similar job for Mr Dean, another Birmingham man. In 1849 he returned to John Inshaw, working on the engines and boilers of some twin-screw boats for the Grand Canal Co, of Dublin. More stationary engine work followed, in 1851 at the Islington Foundry, Birmingham, and then he commenced railway work, under no less a person than Daniel Gooch at the Great Western Railway's Swindon Works in May 1853. Evidently Stroudley was not over-impressed by his Swindon training because he was all-set to emigrate to Australia the following year, to work for his old employer John Inshaw, on the erection of a pair of mill engines. However, when his parents objected, he went instead to Peterborough, where his father had arranged a job for him, working as a fitter at the Great Northern Railway's running sheds.

At Peterborough, Stroudley's immediate chief was Charles Sacré, who later became the Chief Engineer and Locomotive Engineer of the Manchester, Sheffield & Lincolnshire Railway, (later becoming part of the Great Central Railway). Sacré was of French origin and somewhat unusually for a Frenchman he was a strict disciplinarian in his own ways, although given to acts of practical joking; at least whilst still a young man. (Hamilton Ellis gives a remarkable account of the later life of Charles Rebout Sacré in his book *Twenty Locomotive Men*; a life that ended in tragic circumstances.) The Locomotive Superintendent of the GNR at this time was Archibald Sturrock, a pupil of Daniel Gooch, and Swindon-trained. Apparently Stroudley made a good impression upon his masters, because although for a while he left the GNR and worked for the private colliery and brickyard railway owned by Lord Willoughby d'Eresby, and then for a while at Helpstone Paper Mills in charge of the machinery and boilers, in due course he returned to the GNR running sheds at Peterborough in the role of running shed foreman.

The practical day-to-day railway experience gained at Peterborough was to stand Stroudley in good stead for the rest of his life. Keeping a stud of steam locomotives in good order was a very different proposition from his earlier experiences, with stationary engines and boilers, and his success in this respect did much to enhance his growing reputation as a

**History of the Southern Railway* by C. F. Dendy Marshall, revised by R. W. Kidner. Published by Ian Allan Ltd.



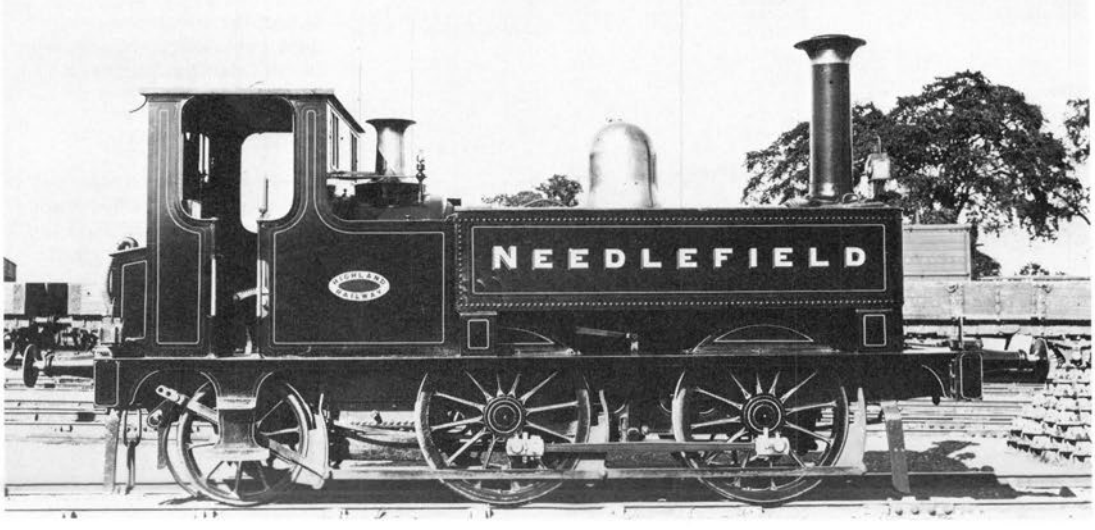
competent engineer (despite what Mr Dendy Marshall would have us believe!) As a result, at the age of 28, in the year 1861, Stroudley was appointed Works Manager at the Glasgow, Cowlairs Works of the Edinburgh & Glasgow Railway. At Cowlairs he worked first for William Steel Brown, and then briefly for Samuel Waite Johnson.

It is widely believed that Stroudley produced his first locomotive design whilst at Cowlairs, although the design was credited to William Steel Brown. Two 2-4-0 passenger engines were built, Nos 101 and 102 on the E&GR stocklist, and they certainly had a resemblance to Stroudley's later 'Belgravia' class 2-4-0s for the LBSCR. This similarity has often been remarked upon, but I would suggest that perhaps the exact opposite is the truth. In other words, Stroudley – still a young man – was very favourably impressed by these locomotives and sought to copy them himself at Brighton when the opportunity presented itself. In just such a manner the pupil learns from the master, and in the process finds his own style and beliefs. I would also suggest that it is highly probable that in conversations together, Johnson would have impressed upon Stroudley his strong feelings about locomotive appearance, and told him of his search for beauty in machinery.

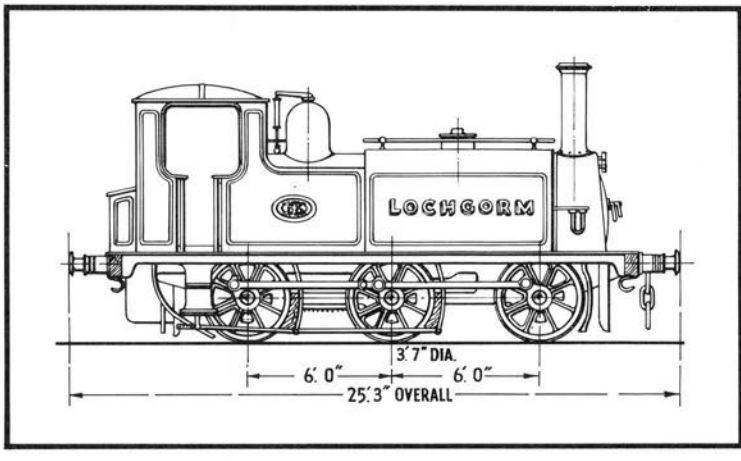
In July 1865, Stroudley was chosen from no less than 31 applicants for the important post of Locomotive & Carriage Superintendent of the Highland Railway; located at the Lochgorm Works, Inverness. Restricted finances gave him little scope for locomotive design and construction and he had to be content with rebuilding some existing 'Singles' into 2-4-0s, and with the modernisation of the Lochgorm workshops, until 1869. Then, at the age of 36, he designed and built his first completely original locomotive. This was a humble yard shunting tank, intended to be suitable for operation by one man, and it had an 0-6-0T layout using old wheels with tee-section spokes. Pieces of the locomotive, No 56 *Balnain* clearly came from Lochgorm's stock of spare parts; whilst the boiler is believed to have been an old Allen boiler, cut-down in the barrel; but the stamp of William Stroudley was there for all to see! The cab, the rear toolbox, and above all the golden ochre livery with its ornate lining-out, and the painted name on the tanksides; all these and sundry other details were Stroudley's personal embellishments to a small but useful machine. (Later, two more of similar type, Nos 57 *Lochgorm* and 16 *St. Martins*, were added to HR stock by David Jones in 1872 and 1874 respectively.) Stroudley was by now revealing himself as an engineer with a great sense of style, as well as being a competent organiser of both men and machines.

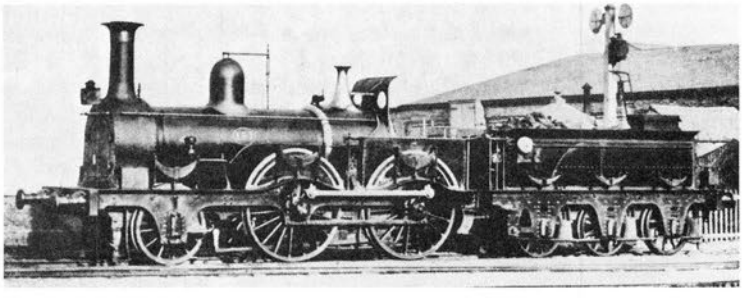
Below left:
William Stroudley is seen here posed on the leading splasher of Highland Railway '18' class 2-4-0 No 21, (fitted with the largest type of wooden snowplough in use on the HR), during Stroudley's days as Locomotive Superintendent; prior to his appointment at Brighton. Note the design of the cabside numberplate, a feature he brought south with him. *LPC*

Below:
During his term of office on the Highland Railway, William Stroudley did not have an opportunity to design and build any completely *new* locomotives, but he did rebuild some existing ones. Perhaps the progenitor of his LBSCR 0-4-2Ts was this delightful little rebuild of an 0-4-0T originally built by Hawthorns of Leith. Stroudley added a trailing carrying axle, an enclosed cab and small toolbox at the rear. The elegant chimney cap, the lining-out and shaded lettering of the name *Needlefield*, all bear the hallmark of the man who was both an engineer and an artist. *LPC*

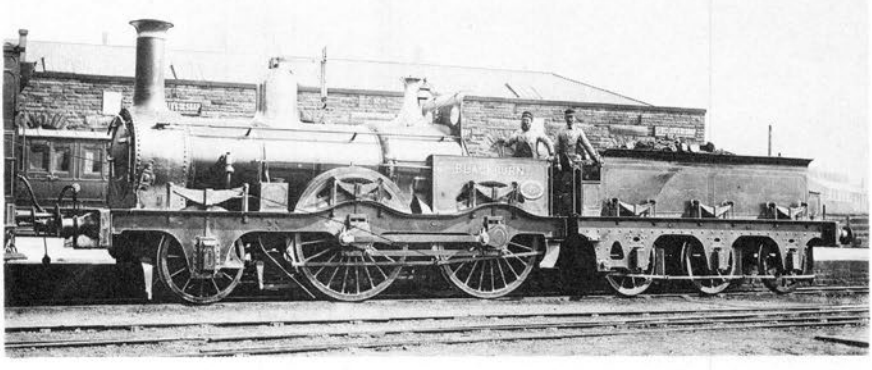


Right:
The forerunner of Stroudley's famous 'Terrier' 0-6-0Ts was a rebuild he produced in 1869 on the HR, using existing boilers and parts, but adding his own distinctive cab design and livery. No 57 *Lochgorm* was one of three engines rebuilt to his design; in fact appearing in 1872 when David Jones had succeeded Stroudley on the HR, and the same year that the first LBSCR 'Terrier' was completed. It is possible that the chimney shown on this engine was a replacement of a Stroudley copper-cap; more to David Jones' taste perhaps.
LPC

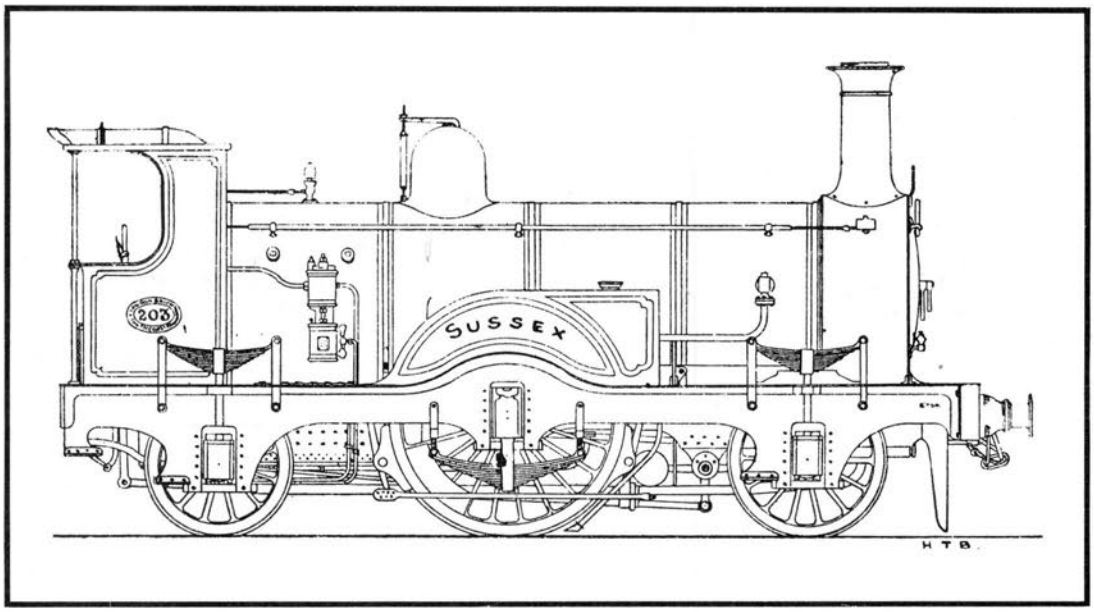




Left:
One of the better engines of J. C. Craven's very mixed fleet was this 1862 Brighton-built 2-4-0 No 151, with 6ft driving wheels. Photographed in 1865 in evening sunlight, on a wet-collodian plate, the locomotive is in Craven's bright green livery with red framing. Stroudley viewed many of the Craven-era engines with dislike, and determined to replace them as quickly as possible with a limited range of standard types to his own design. *Ian Allan Library*

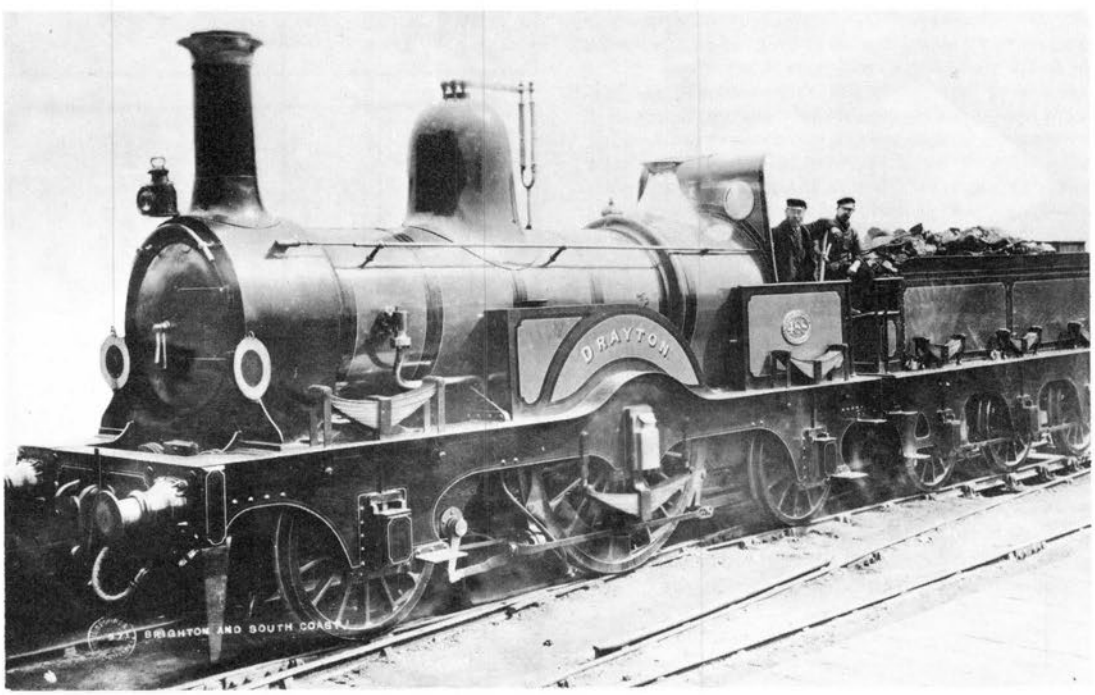


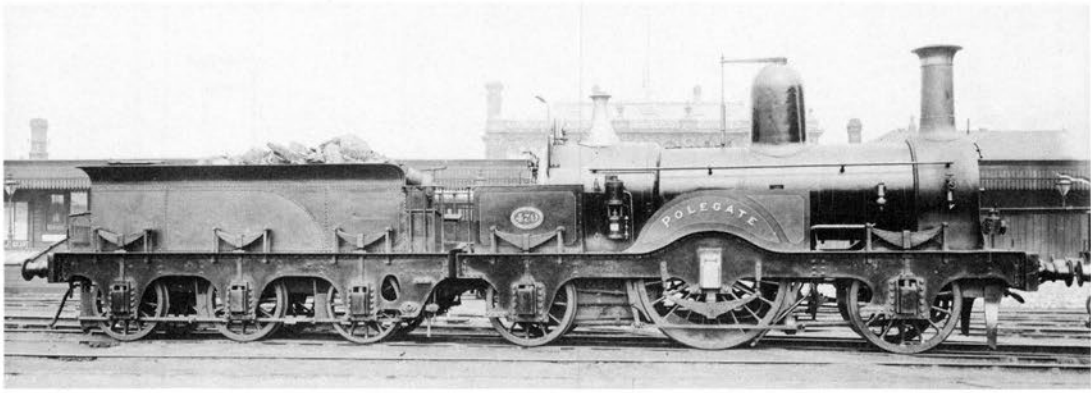
Left:
No 151, pictured in the previous photograph, was modified in some details such as springs, dome and safety valves by Stroudley, and given his golden ochre passenger engine livery. In 1883 it was sold to the West Lancashire Railway (still in Stroudley colours), and named *Blackburn*, with its new number 7 in LBSCR style on the cabside. *LPC*



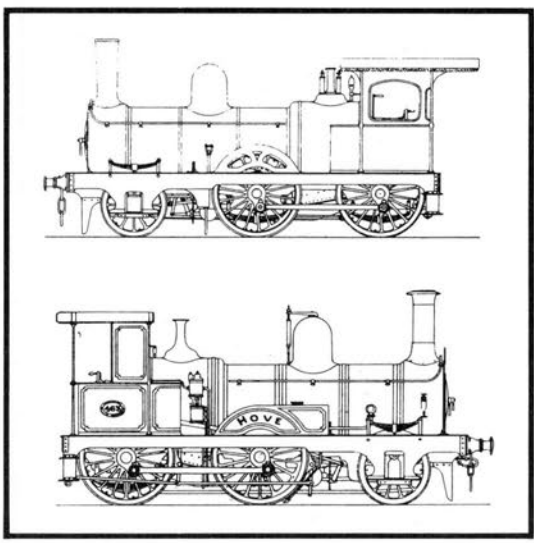
Above:
Stroudley rebuilt some Craven-era 'Singles' of 1864 Robert Stephenson design in 1871/2. Two became 2-4-0s, (and these are described in Section 3) but one was still a 2-2-2 and of powerful dimensions. No 203 *Sussex* originally had a domeless boiler with Adams safety valves, but Stroudley found this arrangement unsatisfactory and later modified it as shown in this drawing. It was a costly rebuild and remained the only one of its kind; nevertheless being a very successful machine, with a reputation for speed.

Below:
Less drastic alterations were made to some of the other Stephenson 'Singles', in 1870/2; with lower cost. These had a number of detail alterations including new enclosed driving wheel splashers, new domes and safety valves, etc., but retained their rather primitive cab design. Stroudley gave them his beautiful livery, and names. Pictured here is No 488 *Drayton*, (originally No 205).
Bluebell RPS Archives



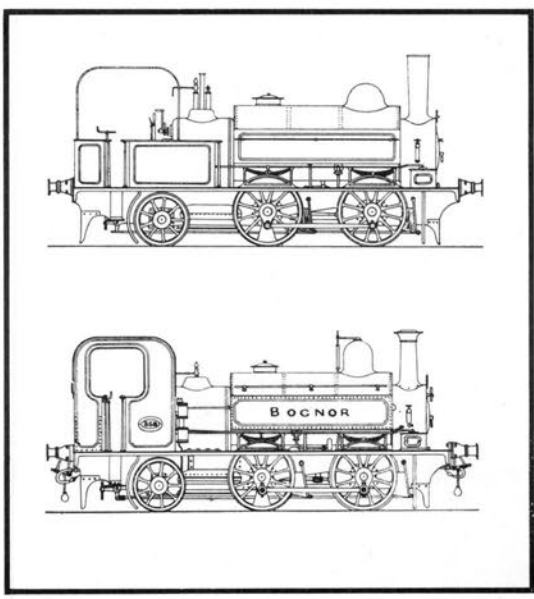


Above:
Nasmyth Wilson-built 'Single' of 1867 Craven design, seen after modification by Stroudley, who fitted closed splashers, improved springing, new chimney and dome, enlarged sandboxes and sundry other details. The tender of Craven design, still had wooden brake blocks when this picture of No 479 *Polegate* was taken late in its career. Originally No 239, *Polegate* was an early recipient of the Stroudley golden ochre livery, (on a trial basis in 1870), and received the Westinghouse brake in 1879, as seen on the firebox side; at which time clasp brake shoes were fitted to the driving wheels only. *LPC*



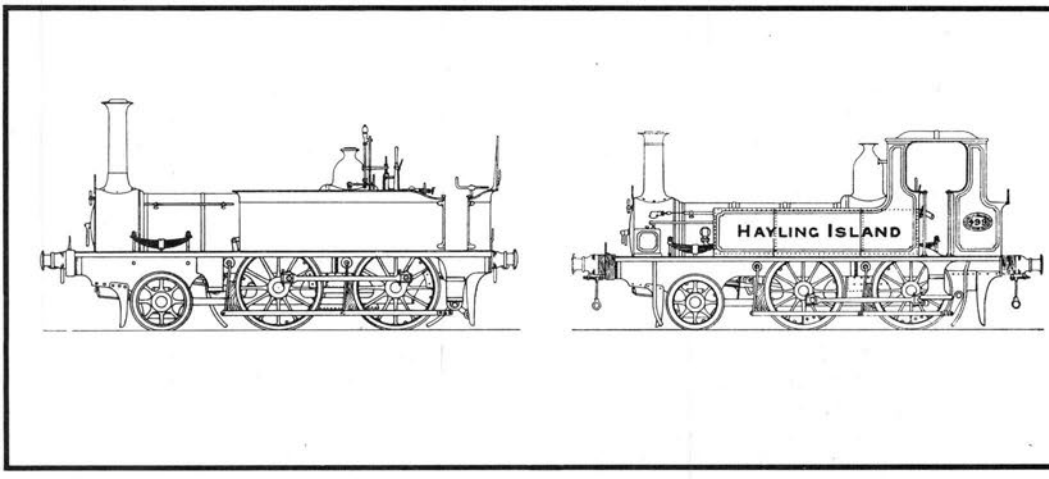
Above right:
An interesting Stroudley rebuild was produced from the small 2-4-0 passenger engine No 248; built by Kitson & Co in 1867. Craven had purchased this after it had been exhibited at the 1867 Paris Exhibition, where it won a gold medal. The cab, with its huge sunshade-style roof suggests that Kitson's designer was thinking in terms of India or Egypt, rather than the British market. Apparently no such buyer was immediately forthcoming, and Craven persuaded the LBSCR to add it to his already very heterogeneous collection of locomotives! Stroudley put on his combined sandbox and splasher, rebuilt the upper part of the cab and roof, and put his copper cap on the chimney. The original Naylor safety valves (which had proved prone to sticking) were replaced by two spring balance safety valves, later moved to the dome as shown in the drawing. Stroudley named it *Hove*, and in 1881 it was renumbered 463.

Right:
Kitson & Co built an 0-4-2 saddle tank for Craven in 1869, with a rather curious curved cab roof formed by making it one with the front and rear spectacle plates. The Naylor-type safety valves were fitted, and a plain stovepipe chimney. Originally numbered 76, it was named *Bognor* by Stroudley, who gave protective sides to the cab and replaced the safety valves and dome. He fitted his copper-cap chimney, and the Westinghouse brake. Renumbered 358 in 1877, and again to No 496 in 1886 the engine was latterly used between Arundel and Littlehampton, until scrapped in 1895.



Below:
This charming little 2-4-0T was supplied by Sharp, Stewart & Co in 1869, and added to the Craven menage, as No 96. The boiler was domeless and there was scant protection for the enginemen on the footplate. It seems to have been a useful little machine, however, and Stroudley improved it by adding his usual touches, including a proper cab and a dome. He named it *Kemp Town* and it worked the Brighton – Kemp Town service until replaced by Stroudley's new Class A 'Terrier' No 64 in 1874; when the 'Terrier' took the name *Kemp Town*, and it was renamed *Hayling Island*; being renumbered in turn as Nos 115 and 359 and 499. It worked on the Hayling Island branch until once again displaced by Stroudley's new 'Terriers'.

Above:
Even more surprising changes were made by Stroudley to No 499 *Hayling Island*, and it was unfortunate that he did not live to see the work completed. In 1890 it was renumbered No 481 and named *Inspector*. A small saloon was added to the back of the locomotive, with an extra pair of carrying wheels; (the *only* Stroudley designed 2-4-2T that has been authenticated!) It was intended for use by the line's engineer when inspecting track work, bridges, tunnels; etc. A speaking tube communicated between saloon and engine cab, and it was fitted with a speed indicator of Stroudley design. No 481 *Inspector* is seen here on shed at Brighton; it was scrapped in January 1899.
Ian Allan Library/Madgwick collection



The Brighton years. 1870-1889

The move to Brighton, to become Locomotive & Carriage Superintendent of the LBSCR took place in February 1870; when after applying together with 27 other applicants Stroudley was given the post, which fell vacant with Craven's retirement. Here again I find it hard to credit Dendy Marshall's description of Stroudley as a 'dark horse'. Why was he, and only one other, (J. Tomlinson of the Taff Vale Railway,) short-listed by the LBSCR board of directors? Surely because he held the *highest* promise in their opinion! While it is certainly true that he had not had much opportunity to *design* locomotives, he had by that time exhibited very considerable prowess as an engineer and superintendent; in particular on the Highland Railway.

In his RCTS history Bradley states that while on the HR Stroudley had completely transformed it, so that late running was reduced to a minimum, operating costs were drastically cut, and locomotive failures almost unheard of. On reaching Brighton, Bradley observes, the clock could easily have been put back five years, because the LBSCR was in much the same sorry state that the HR had been in when Stroudley first arrived. The locomotives of the Craven period were a motley collection, and to begin with Stroudley rebuilt some of the better ones, or the most useful, whilst letting the others gradually wear themselves out. Meanwhile he was busy planning a new locomotive stud of only about half-a-dozen closely related types; with interchangeability of parts between classes when practicable.

William Stroudley gave his own description of what faced him on the LBSCR in a paper he read before the Institution of Civil Engineers ('the Civils') in March 1885. The paper commenced as follows, (I quote):

'The Author, on his appointment to the London, Brighton & South Coast Railway in 1870, had to consider what kinds of locomotive engine and rolling-stock would best meet the requirements of the service; as, owing to the great increase and complication of the lines and traffic, the original primitive engines and rolling-stock were not able to do so.

'This railway system offers some peculiarities, when compared with its neighbours, in having no less than 90 miles within the Metropolitan area, 15 of these having three or four lines of rails. Some of the lines have very heavy gradients, and curves as small as 6½ and 7 chains radius; there are ninety-four junctions, and twenty terminal stations and from some of these latter, the line rises with gradients of from 1 in 64 to 1 in 80. These features, together with a crowded passenger-traffic moving at irregular intervals, over about twenty hours out of the twenty-four, cause the working to be very difficult. Some of the locomotives are attached to as many as 16 trains in one day; the loss of time in running on and off, and in standing waiting, tending to increase the cost of working, as compared with those railways having more continuous lines. The great distance from the collieries also renders the fuel costly.'

As I have already said, Stroudley's earliest work was in the form of rebuilding some existing locomotives, but at the same time he was concentrating his energies and funds upon the modernisation of Brighton Works and of some of the principal running sheds. Stroudley must have kept the Brighton drawing office staff on their toes, as he replaced various antiquated items with his own standard practices, at the same time bestowing the colourful new livery to the engines and the beautiful Stroudley chimney, and numerous other touches, including the application of names to previously anonymous locomotives. From these early rebuildings (and the earlier ones in Scotland) it is evident that Stroudley had a strong interest in the design of *details*, and had no hesitation in changing the fitments upon existing locomotives to suit his liking. In due course he became an advocate of the Westinghouse brake; of feedwater heating; feed pumps; of speed indicators; and of standardisation both of locomotive types and components. His cab design was good for the period, and certainly eye-catching, with its domed central roof portion, (incidentally the roof was always painted white, and kept clean during his *régime*) and a nice touch was to paint the name of the driver, and the mileages run, with dates, inside the cab.

In the Sections that follow, each locomotive type designed and introduced to traffic on the LBSCR is dealt with in chronological order, and their subsequent careers followed-through until final withdrawals. It should be remarked here that when new, *all* passenger locomotives were in the elaborate golden ochre livery, whereas goods engines were basically in a very dark olive green with black edging. Contemporary photographs show the golden

ochre (or *yellow*, as some writers will persist in calling it!) to much better advantage than the green, which did not photograph at all well. The new practice of naming locomotives, which Stroudley had favoured in Scotland, brought some headaches to the Brighton works paint shop. Each letter was carefully hand-applied in a gold sans-serif form, (some authorities have claimed that transfers were used, eg: E. F. Carter in his book *Britain's Railway Liveries* published by Harold Starke Ltd) and then shaded. To the left the shading was a mixture basically of graduated bluish sea green, with white and claret lines struck into it. To the right the gold letters were shaded in black.

The spacing between letters of a name seems to have been left to the judgement of the painter, and there were instances where this went somewhat astray. Errors in spelling were not entirely unknown, and these are noted in the relevant Sections. A curious example concerns the 'Terrier' 0-6-0T No 82 *Boxhill*. The name was spelt by the painters as one word, although the correct version was *Box Hill*, as two words; as with the engines of the same class: *Gipsy Hill*, *Tulse Hill* and *Kemp Town*. Since then the inhabitants of Box Hill, a Surrey beautyspot – where the author of this book lived for a number of years – have also changed the two words to one in everyday usage; although it was still possible to find old signposts with the correct version in the mid-1970s. Finally, whilst on the subject of names one must say that it *must* have been misleading to some LBSCR travellers for them to see the locomotive at the head of their train proudly sporting the name *Westminster* or *Boxhill*, for example, when *they* were en route for Hove! (History repeats itself – the Eastern Region is currently putting the names of important places served by the HSTs on some of their power cars.)

The numbers, in relief upon Stroudley's characteristic polished oval brass plate had a dark blue background; around the border was inset lettering finished flush to the brass surface with black wax. No numbers were carried on the bufferbeam, or front end; until D. E. Marsh replaced the golden ochre with his umber livery. Marsh chose the umber brown for its durability, and used gold leaf numerals and lettering with black shading, and gold or yellow lining-out.*

Finally, before proceeding to describe each Stroudley class a word is necessary about the various renumberings that occurred to Stroudley's locomotives over the years. Basically, during LBSCR days it was the practice to renumber older locomotives in order to make way for new locomotives at the head of the list. I have already explained in the Preface to this book, that in the Sections that follow only the *original* numbers carried are listed completely, together with final numbers at time of withdrawal. Readers in search of a complete list are recommended to the RCTS partwork (see Bibliography, page 128). However, as a general guide the main changes were as follows:

(a) **During LBSCR days**: Surplus stock, stored out of use or placed in the stocklist as surplus to capital stock (for accountancy reasons) were often renumbered on a duplicate list, by the simple addition of 500, or 600 to their original numbers; thus No 35 became No 635, etc. In addition, some locomotives were *renumbered* into the 600 series, for example Class E1 0-6-0Ts Nos 103-105 became Nos 695-697 in 1913/5. All such changes can be found in the RCTS partworks.

(b) **Early SR days**: Former LBSCR locomotives taken over in 1923 by the Southern Railway, retained their numbers until 1931, but carried the prefix B, for Brighton. In 1931, all Central Section (former LBSCR) locomotives had 2000 added to their numbers; thus No B635 became No 2635.

(c) **BR days**: The existing numbers had 30,000 added to them; thus No 2635 became 32635, etc.

(d) **Isle of Wight locomotives**: had a separate list in SR days commencing with No W1, etc.

*Very concise descriptions of the locomotive liveries of Stroudley, Billinton and D. E. Marsh can be found in the book *Britain's Railway Liveries,* by E. F. Carter; published by Harold Starke Ltd.

SECTION 1

0-4-2T Class 18
Suburban Tank Engines
Introduced: 1871
Total: 2

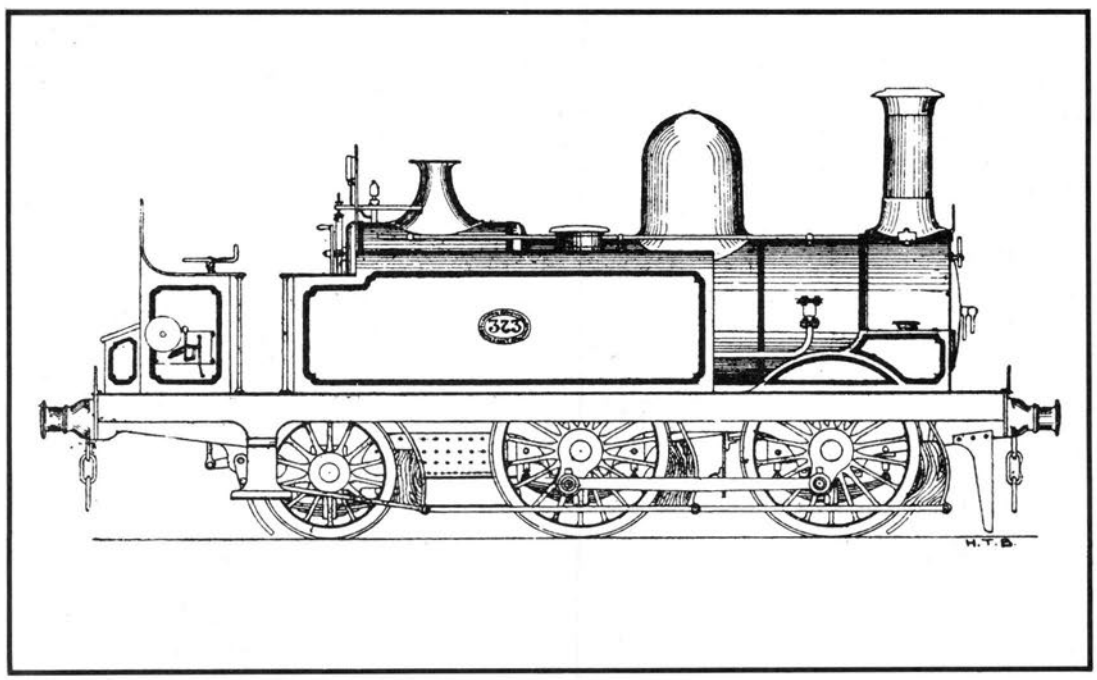
These two locomotives, Nos 18 and 21, had been authorised before Stroudley took office at Brighton, but little physical work had been undertaken upon them. Craven had envisaged them as double-framed 0-4-2 saddle tanks, suitable for suburban passenger duties. Stroudley dismissed the Craven design, and had them redrawn as side tanks with inside frames and bearings; utilising some of the parts already manufactured, which probably explains why the distinctive Stroudley cab was not used on these locomotives.

They were sent to the New Cross shed for use on the London suburban services, and when used as such they were found to be somewhat unsuitable for the poor tracks then existing. This perhaps aided Stroudley in clarifying what was required when preparing the drawings for his famous 'Terriers' and 'D' tanks. Stroudley modified the springing of No 21, and put the engine to a series of trials from Brighton, Eastbourne and Horsham sheds, following a derailment (happily of a minor nature), which had happened whilst No 21 was leaving Penge station in 1873. It is also probable that Stroudley was particularly interested in achieving stability with this 0-4-2T layout, in view of the later introduction not only of his own Class D 0-4-2Ts, but also his noted adherence to the 0-4-2 wheel arrangement for passenger tender engines.

The construction of the small 0-6-0T Class A (later A1) 'Terriers', and the later Class D (later D1) 0-4-2Ts for London suburban traffic meant that all the earlier, and often rather unsuitable, Craven-era locomotives could be replaced. These two Craven/Stroudley 0-4-2Ts were then amongst those sent away to less exacting duties. No 21 went to the Brighton district; eventually ended its running days at Horsham before finally seeing some use as a pumping engine. The other locomotive, No 18, remained in the outer London area for longer, working on the Wimbledon-West Croydon line; until sent to Eastbourne. It also acted as a pumping engine, at Bramley for some months prior to withdrawal.

The locomotives were built as follows:
No 18 Brighton 1871
No 21 Brighton 1871

First of class withdrawn: No 18 (later No 373) 5/1886
Last of class withdrawn: No 21 (later No 467) 8/1888
None preserved

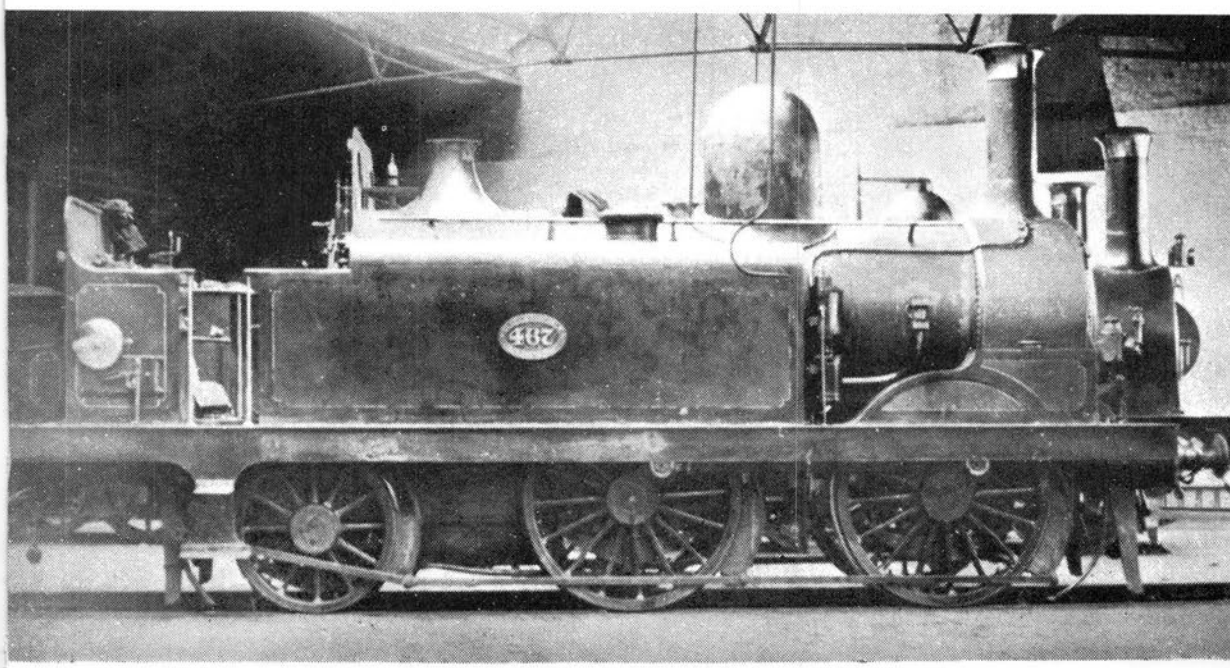


The basic dimensions of the class as first introduced were as follows:

Cylinders:	16 in by 20 in
Coupled wheels:	5 ft 0 in
Trailing wheels:	3 ft 8 in
Wheelbase:	7 ft 0 in + 7 ft 0 in = 14 ft 0 in
Boiler diameter:	3 ft 11 in
Boiler length:	9 ft 9 in
Firebox length:	4 ft 8 in
Heating surfaces:	
Tubes:	745 sq ft
Firebox:	78 sq ft
Total:	823 sq ft
Grate area:	8¾ sq ft
Working pressure:	140lb/sq in
Weight in working order:	
Leading coupled wheels:	10T 11C
Trailing coupled wheels:	11T 3C
Trailing wheels:	10T 3C
Total:	31T 17C
Tank capacity:	570gal

Below left:
Outline drawing of 0-4-2T No 373, originally No 18; one of two built by Stroudley using some pieces already prepared to Craven's design at Brighton works.

Below:
Originally No 21, later renumbered No 265 and then No 467, the second of the two 0-4-2Ts is seen in latterday state when working in the Horsham area. It is surprising that Stroudley never considered it worthwhile adding his cab design to these engines, which were in some respects the precursors of his own 'D1' class 0-4-2T design.
Ian Allan Library



0-6-0 Class C
Goods Engines
Introduced: 1871
Total: 20
'Jumbos'

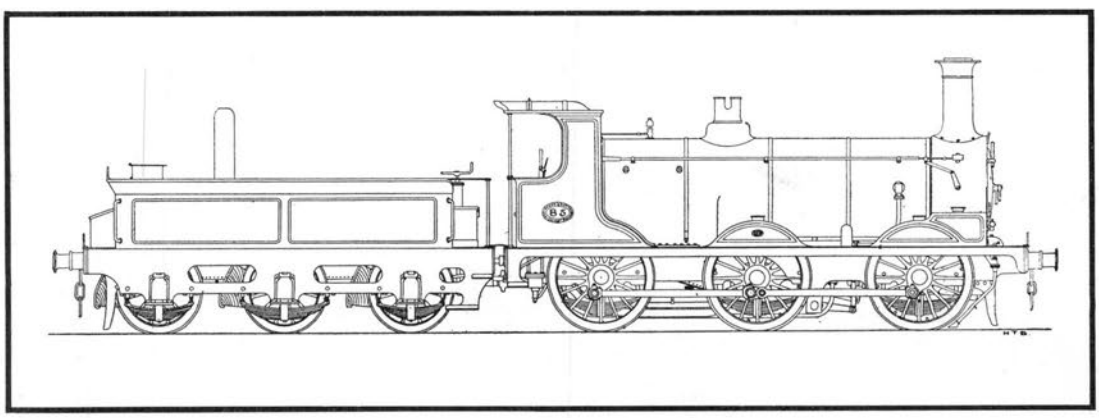
An order placed by Craven for four 0-6-0 goods locomotives, to be built by Brighton works, was subsequently cancelled by Stroudley and replaced by an order for only two, of his own design. Nos 84 and 85 introduced a modern note to the LBSCR goods engine fleet; being in fact the largest goods locos of their kind in the British Isles when first delivered to traffic. With inside frames, of great thickness and depth, the characteristic Stroudley features began to emerge with this design, although to begin with his boiler was domeless, and a pair of Adams patent safety valves was fitted; mounted on top of a raised manhole cover. The beautiful chimney design, with its copper cap gave an elegance to the front end, and the locomotives were finished in the dark green goods engine livery, with black edging; to which was added the large cabside polished brass oval numberplate with blue background. The design of the cab was a great advance upon Craven's provision for goods enginemen, and featured the characteristic Stroudley domed roof, extending well back over the footplate.

The tender design featured outside frames, with six wheels of 4ft diameter and underhung springs. Stroudley's feed water heating system was used in these tenders, which necessitated a large exhaust steam dome over the tank (see drawing). It was possible for the fireman to stand upright on the top of the tank itself without fouling the loading gauge (in particular – tunnels, overbridges and signal gantries) because the tank was set low in the frames. The only brake provision was the tender handbrake; the locomotive itself having no brake whatsoever, except resort to the reversing lever, and the guard had an important role to play in braking the train from his van at the rear.

The Adams patent safety valves proved troublesome in service, a problem with all the types of locomotive that Stroudley fitted them to, and in 1876 Stroudley replaced this feature on No 84, using instead a large steam dome with an elegant pair of spring-balanced outside safety valves attached; No 85 following suit in due course. Similar changes were made to all other Adams-fitted boilers, and the steam dome became a standard Stroudley feature for new construction; adding to the distinctive outline of his designs.

In his RCTS history, Bradley relates in considerable detail the trials and tribulations which afflicted the class to begin with, including poor steaming and crank axle breakages. The feedwater heating also caused some headaches, and alterations were made to the heating elements and to the boiler feed pumps. However, at the time Stroudley was sufficiently pleased with his design to seek and obtain permission to build another 12, and in April 1872 tenders were invited from several outside locomotive builders. The contract went to Kitson & Co, but the locomotives were delayed in completion because Stroudley

Below:
The line drawing depicts the 'C' class 0-6-0 goods engine as first designed by Stroudley, with domeless boiler and Adams safety valves. No brakes on the engine and wooden brake shoes on the tender which was of Stroudley design with underhung springs. The tall dome in the tender was part of the feedwater heating system.



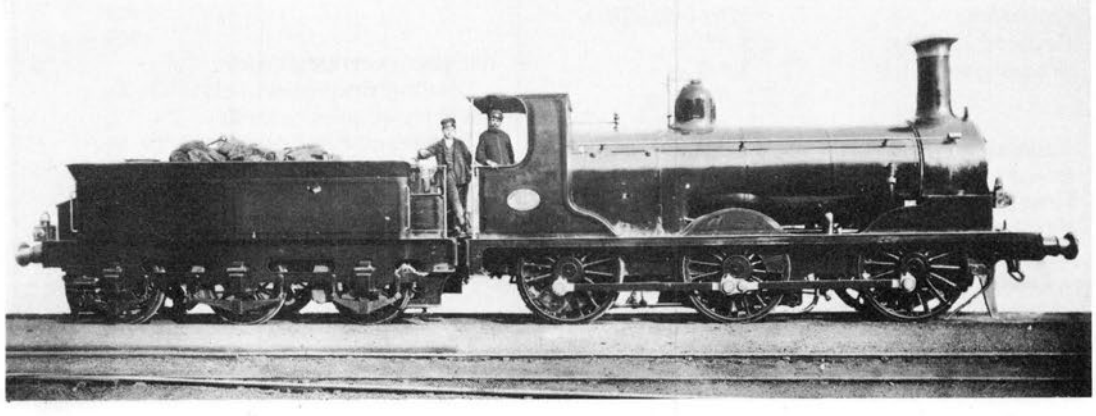
changed the boiler drawings, after signing the contract, in order to replace the Adams patent safety valves, with the new arrangement of a steam dome and attached spring balance valves; there were also a few later minor alterations. The two inside cylinders, which were a one-piece casting with the steam chest, had to be sub-contracted to the Vulcan Foundry, who were already supplying cylinders to Brighton works, because Kitson persistently encountered problems when trying to make the castings themselves.

Faced with these delays, and obviously frustrated, Stroudley obtained permission to build six similar locomotives at the LBSCR's own Brighton works, and this was augmented by an agreement to put the workshop staff on overtime; in all departments. Within three months the first locomotive was completed, No 77 in March 1873, and all six were delivered by mid-July! To a large extent this achievement must be credited to Stroudley's reorganisation and up-dating of the Brighton locomotive workshops. The first Kitson-built engine was delivered in June 1873, in shop grey livery, and it and all the rest of the batch proved to be defective in such items as buffers, cylinders, tubes, firebox, etc! They were rectified at some financial loss to Kitson's. Like the earlier locomotives there were later problems with crank axle breakages, and persistent poor steaming. It is said that most of the trouble came from poor boiler circulation, which gave plenty of steam when the locomotive was stationary, but the steam available was severely diminished when the locomotive was worked hard.

The lack of engine brakes, at a time when goods traffic was surprisingly plentiful, and well-loaded, had given rise to considerable criticism from the enginemen, who were forced to rely upon the vigilance of the guard to a considerable extent. In 1884 Stroudley commenced fitting the Westinghouse brake to some of the class, and this actuated pairs of shoes on the centre and trailing coupled wheels. To distinguish brake-fitted examples a fine red line was added to the dark green livery, separating it from the black edging.

Despite their boiler deficiencies, which were never fully cured, the class put in considerable hard work throughout their lives. Although new fireboxes were carried, a plan to fit new boilers of improved design, produced in 1901, was not carried out, and at about this time the existing boilers began wearing out, resulting in the first withdrawals of the class; all going by December 1904. During their careers they had been quite widely allocated over the LBSCR system, and it is said that the Hastings and Newhaven based engines in particular, were much liked – despite their built-in shortcomings – and they found much work on the daily goods trains to London. In their dotage some locomotives ended their useful life on engineer's ballast trains, local goods and shunting duties, or station piloting. Use of the 'Jumbos' on passenger trains, or excursion work, had early-on proved something to be avoided if at all possible, because of their lack of brake power and poor steaming when worked so hard. Some New Cross Gate locos were employed on London Bridge empty coaching stock duties, when fitted with the Westinghouse brake. After withdrawal, four boilers were salvaged for further use: one to steam-heat oil tanks in cold weather at a Shell Oil Company depot alongside the River Thames, and three for conversion by Kitching & Co, Darlington to power steam ploughs.

Below:
Finished in the dark olive green goods engine livery, with black lining-out, 'C' class 0-6-0 No 91, one of the batch built by Kitson & Co of Leeds in 1873. Revised boiler design, with dome and two spring balance safety valves. *LPC*



Above:
A pleasing study, taken in the evening sunlight at Brighton shed, with the black lining-out showing up remarkably well upon the dark green livery. No 416 (originally No 92, built by Kitson & Co in 1874) was not one of the engines favoured with the fitting of the Westinghouse brake. Note the reversing rod which is placed inside the firebox lagging.
Ian Allan Library

The locomotives were built as follows:
Nos 83/4 Brighton 1871
Nos 77-82 Brighton 1873
Nos 85-96 Kitson & Co 1873/4

First of class withdrawn: No 83 (later No 407) 8/1901
Last of class withdrawn: No 96 (later No 420) 12/1904
None preserved

The basic dimensions of the class as first introduced were as follows:

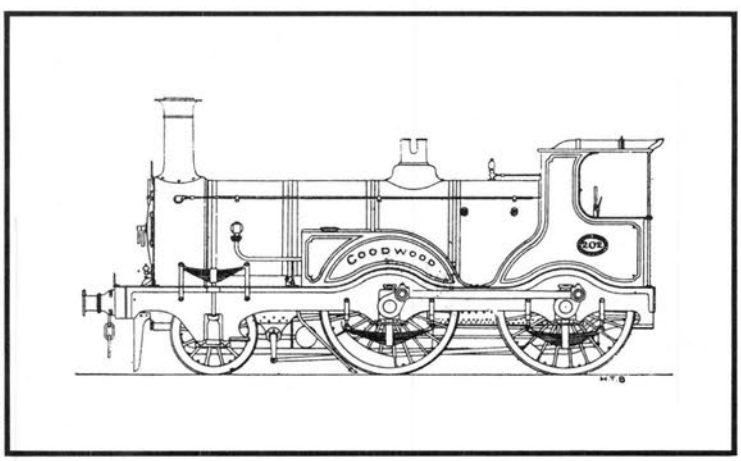
Cylinders:	17½ in by 26 in
Coupled wheels:	5 ft 0 in
Wheelbase:	7 ft 9 in + 7 ft 6 in = 15 ft 3 in
Boiler diameter:	4 ft 5 in
Boiler length:	10 ft 4 in
Firebox length:	6 ft 2¼ in
Heating surfaces:	
Tubes:	1334 sq ft
Firebox:	102 sq ft
Total:	1436 sq ft
Grate area:	19½ sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Weight in working order:	
Leading coupled wheels:	13T 0C
Centre coupled wheels:	14T 12C
Trailing coupled wheels:	11T 0C
Engine total:	38T 12C
Tender (1,600 gal)	24T 18C
Engine and tender:	63T 10C

SECTION 3

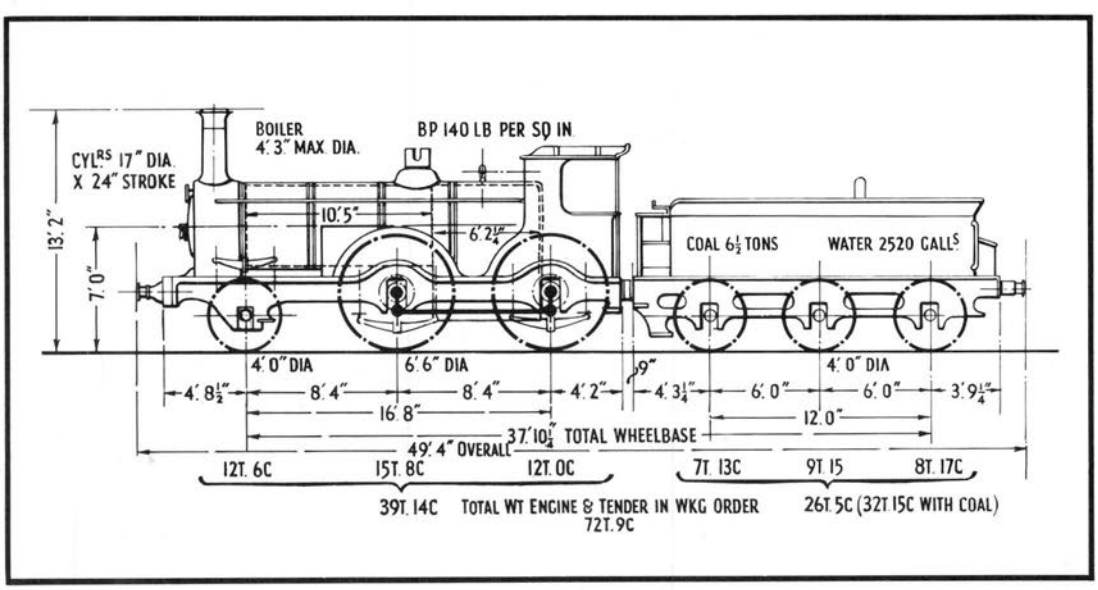
2-4-0 Class B
Passenger Engines
Introduced: 1872
Total: 6
'Belgravias'

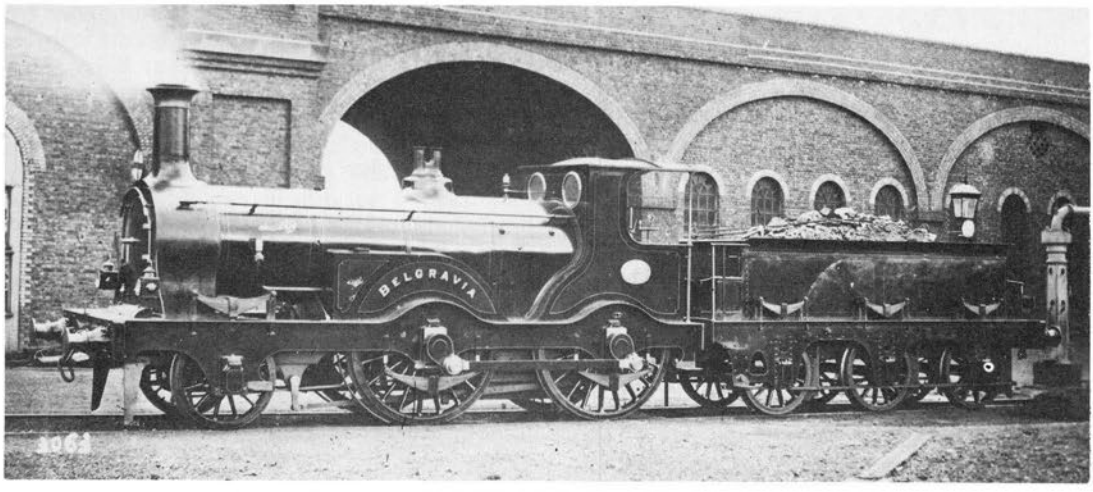
Amongst the outstanding orders which had been placed during the Craven period, that Stroudley found on his desk upon taking office, was one for six passenger 2-4-0s, which were to be built at Brighton. Although work had not begun, six sets of frames had been ordered from the Avonside Engine Co. This was because, until Stroudley modernised the Brighton workshop facilities there was no machinery for cutting the heavy iron plates for framing. When Avonside delivered the frames, Stroudley used four sets, to build four outside-framed 2-4-0s of his own design; all of which appeared in 1872. The first one completed, No 204 *Westminster* and the second, No 205 *Kensington* were apparently commenced as official rebuilds of 'Singles' produced by Robert Stephenson & Co in 1864; these being LBSCR Nos 204 and 198 respectively. However, little of the original engines could have been incorporated, except the tender in the case of No 204 *Westminster*, because new boilers of Stroudley design were fitted, and Bradley records the Stephenson boilers going to two Craven goods engines, and the frames and other parts were sold for scrap.

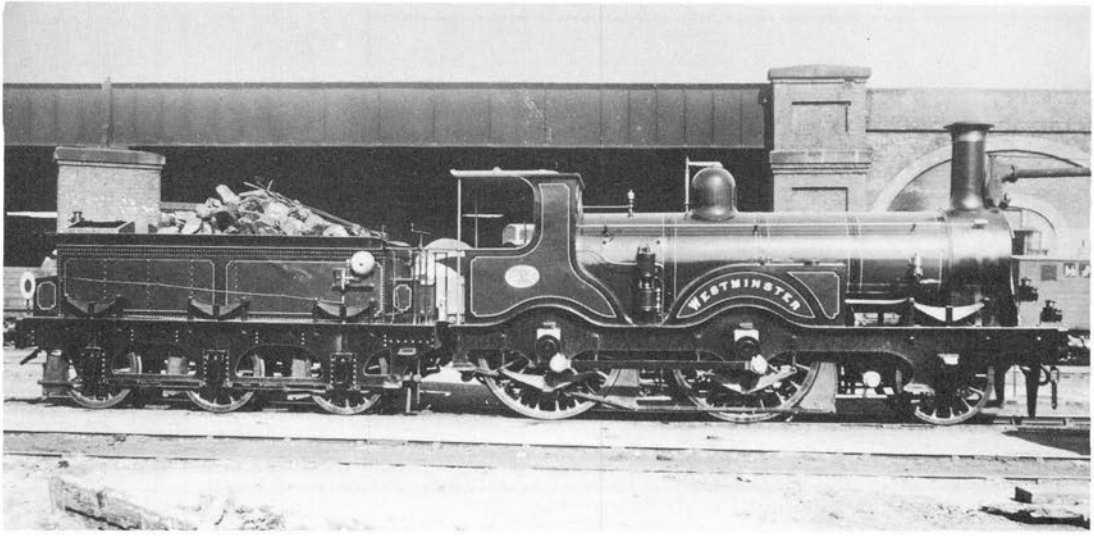
Two more locomotives followed, described

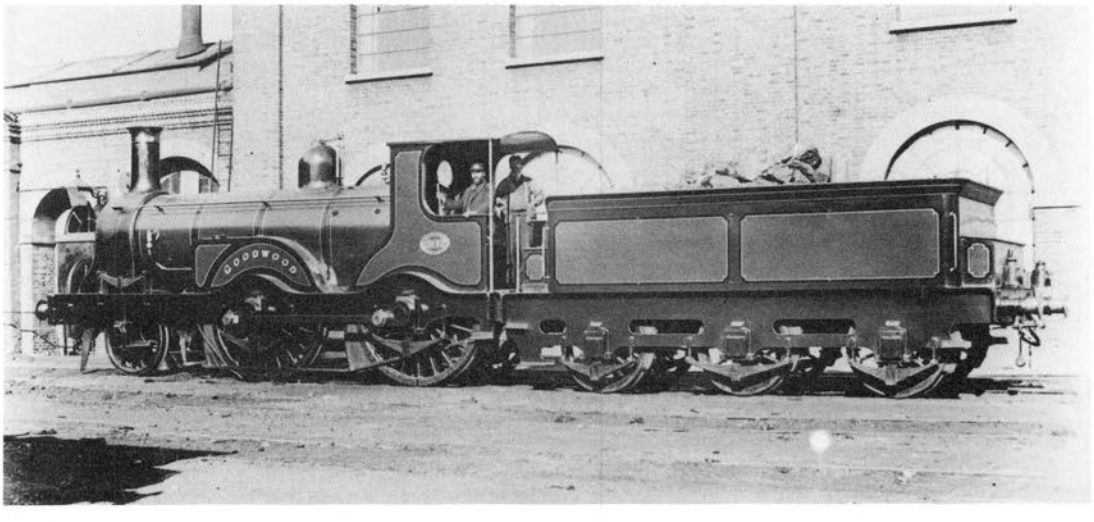


Left:
The line drawing depicts 'B' class 2-4-0 No 202 *Goodwood* as first designed by Stroudley, with a domeless boiler and Adams safety valves. Craven pattern tenders were attached.




BELGRAVIA


WESTMINSTER


GOODWOOD

as new; Nos 201 *Belgravia* and 202 *Goodwood*, and it was the last of the quartet delivered, No 201, *Belgravia* which gave a name to the class. These two had new tenders of Craven design; one being a spare, the other a partially completed one, finished to Stroudley's orders. The other locomotive, No 205 *Kensington* had an existing Craven tender, suitably repaired after previous accident damage. The most probable reason for describing the first two as rebuilds of Stephenson 'Singles' was for the accountants to underwrite some of the costs – hence, for example, no charge was set against the Craven tender of No 204 *Westminster*, which was merely repainted to match the new locomotive.

In passing, it should be noted that one of these same 1864 Robert Stephenson & Co 'Singles' also gave Stroudley the base for his rebuild No 203 *Sussex*, described on page 25, and it is evident that considerably more material from the original was used in that instance.

The Adams patent safety valves were at first used on the new domeless Stroudley boiler but proved as troublesome on this class as on the Class C goods engines, and the four locomotives were converted to the steam dome and spring-balance attached safety valves layout during the same period as the 'C' class received them. The layout of outside frames gave a very attractive appearance, and Stroudley echoed the flowing lines of these frames in the wheel splashers and cab sidesheeting. Two locomotives later received tenders of outside-frame Stroudley design, about 1876 (Nos 201/2), for working the non-stop Victoria-Portsmouth expresses, and these admirably echoed the design of the locomotive itself; presenting a more modern appearance. The Westinghouse air brake, with its characteristic pump, was added to the locomotives at a later date.

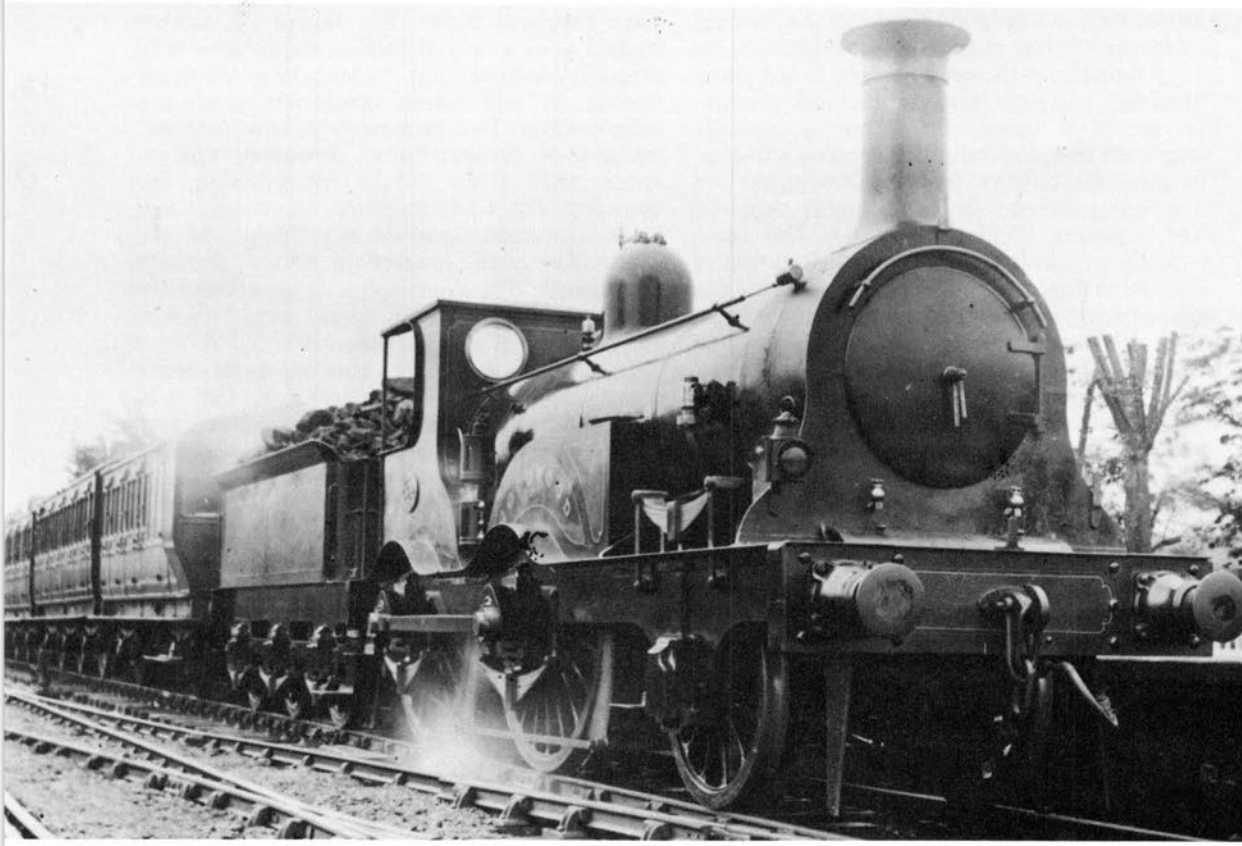
Two more basically similar locos were constructed at Brighton in 1875/6, and it is assumed that these utilised the remaining sets of frames that had been ordered by Craven. The tenders were rebuilt from existing Craven tenders, with a number of improvements; once again keeping down the cost. These locomotives, Nos 206 *Carisbrooke* and 207 *Freshwater* had steam domes and spring balance safety valves, and the boiler was similar to the new boiler on the first Stroudley 'Single' No 151 *Grosvenor* (see Section 6). In 1878 Nos 206/7 were selected specifically to work the 8.45am Brighton to London Bridge express, and did so until 1880; for this purpose being fitted with the Westinghouse brake, for train working.

In terms of performance, the two latter locomotives seem to have shone rather brighter than the first four, and this was presumably due to boiler and draughting improvements. The earlier locomotives had a reputation for being sluggish, and poor on hills, even after some modifications were made to the draughting in 1878/9, and these locos performed best on secondary passenger work; as such running-out their useful lives in LBSCR service. As built, only the driving wheels had inside bearings as well as outside, but it was found necessary to give the leading carrying wheels inside bearings as well as outside, in order to relieve the weight imposed upon the outside axleboxes. Nos 206/7 were built new with outside and inside bearings on all wheels. Semi-fast passenger trains, on the Brighton-London via Horsham, or East Grinstead, and the Hastings-London Bridge services, were the latter-day jobs for the class, and in 1898 the first withdrawals took place; all going by 1902. The last example in use was No 602 (original No 202) *Goodwood* which lingered on at Brighton on station pilot duties and weekend engineers ballast trains; lasting one year more than the rest. One boiler from the class (or possibly from the rebuilt 'Single' *Sussex*), saw further use at the Bournemouth

Top left:
Class B 2-4-0 outside-framed passenger engine No 201 *Belgravia*, in original condition with a domeless boiler and Adams safety valves. The tender was a spare Craven 23½ton, 1,950gal outside framed type. *LPC*

Above left:
Nos 204 *Westminster* and 205 *Kensington* were in theory rebuilds of Craven-era Stephenson 'Singles' Nos 204 and 198 respectively, but according to Bradley's researches, little of the original engines was re-used except perhaps *part* of the frames. No 204 *Westminster* is seen at Battersea, after Stroudley had modified his boiler design, by replacing the Adams Safety valves and adding a dome, with spring balance valves. Note the wooden brake shoes on the coupled wheels, and Westinghouse brake pump on firebox side. The polished brass bell, or gong, on the tender side was part of the electric communication passenger alarm system. *LPC*

Left:
The Craven tenders were replaced by Stroudley's first outside-framed design *circa* 1876, with noticeable improvement to their overall appearance, as the tender framing now matched that of the engine. No 202 *Goodwood* is seen on shed at Brighton with its Stroudley tender, complete with toolbox at the rear end.
Ian Allan Library/Bucknall collection



Above:
Another picture of No 602 (formerly No 502 and originally No 202) *Goodwood* with Stroudley tender attached, at the head of some Stroudley four- and six-wheeled passenger stock. Photographed in 1901 when working from Brighton; it was the last of the class in service, being withdrawn in 1902.
Ian Allan Library/Madgwick collection

Corporation's electric tramway generating station, and is believed to have continued in use there for some time after 1913, at which date Brighton was still supplying any spare parts that were required.

The locomotives were built as follows:
Nos 201-205 Brighton 1872
Nos 206/7 Brighton 1875/6
First of class withdrawn: Nos 201/4 (later Nos 501/4) 2/1899
Last of class withdrawn: No 202 (later Nos 502/602) 1/1902
None preserved

The basic dimensions of the class as first introduced were as follows:

Cylinders:	17 in by 24 in
Leading wheels:	4 ft 0 in (Nos 201/2 4 ft 3 in)
Coupled wheels:	6 ft 6 in
Wheelbase:	8 ft 4 in + 8 ft 4 in = 16 ft 8 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 5 in
Firebox length:	6 ft 2¼ in
Boiler pitch:	7 ft 0 in
Grate area:	18¾ sq ft

Working pressure:	140lb/sq in	
Heating surfaces:		
Tubes:	1112 sq ft	
Firebox:	112 sq ft	
Total:	1224 sq ft	
Weight in working order:	Nos 201/3	Nos 204/5
Leading wheels:	12T 6C	12T 13C
Leading coupled wheels:	15T 8C	15T 1C
Trailing coupled wheels:	12T 0C	11T 11C
Total:	39T 14C	39T 5C

LBSCR/SR Class A/A1/A1X*
BR Class OP
0-6-0T Light Suburban Passenger Tank Engines
Introduced: 1872, 1911*
Total: 50
'Terriers' or 'Rooters'
*Class A1X was the rebuilt version.

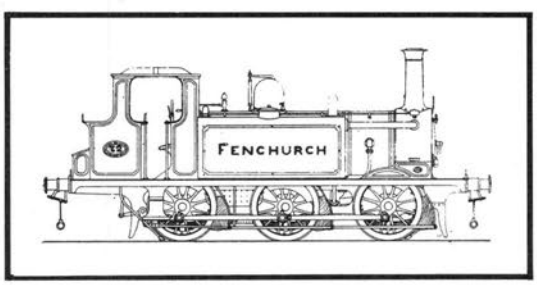
It is incredible to think that some of a class of small tank engines, designed specifically for South London suburban traffic, and of simple and lightweight construction, should still exist in revenue-earning service, as I write these words, some 111 years later! And yet this is the case with the justly fabled Stroudley 'Terriers'; several of which are still used to haul passengers on private preserved railways, as described in Appendix 1 on page 115. This fact becomes all the more remarkable when one discovers that the first LBSCR withdrawals of the class took place in 1901.

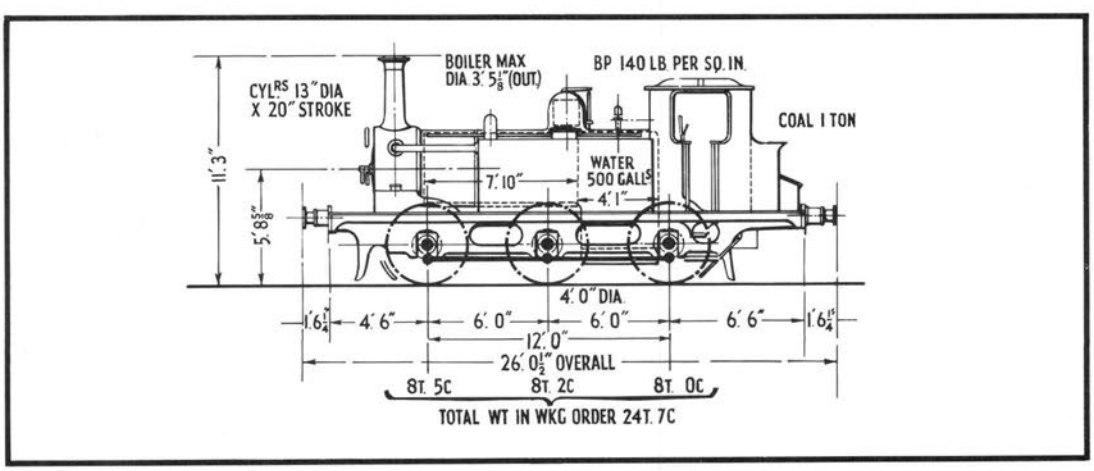
The design was Stroudley's answer to a demand from the traffic department for a powerful but lightweight suburban tank locomotive, with good acceleration, able to run safely over the lightly-ballasted tracks then to be found in the London area, which were also laid with lightweight rails. Stroudley designed a complete *train* for this purpose with close-coupled sets of four-wheelers, hauled by these 0-6-0Ts. This suburban traffic was then expanding, although it was still relatively modest, and did not pay its way.

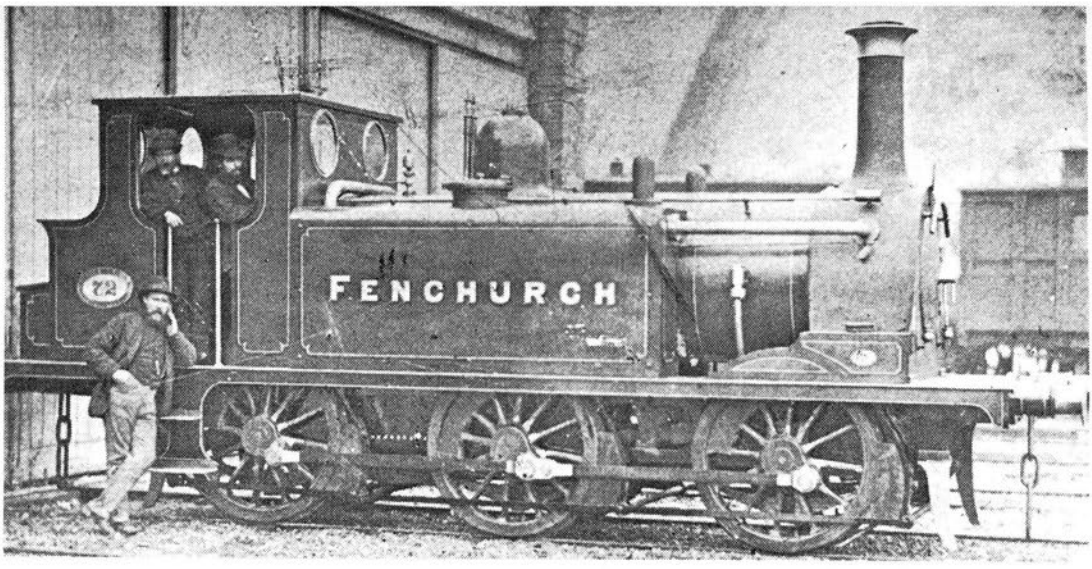
The existing motley collection of Craven-era locomotives were hard-pressed to keep time with their trains on these routes, where the gradients were quite severe, and the distances between stations very short. These South and East London suburban routes were a good testing ground for locomotive reliability, with much skill also demanded from the enginemen! When the first batch of six locomotives reached them, the men must have wondered at the small size of them, but very quickly they marvelled at their astonishing versatility and snappy performance. The famous nickname 'Terrier' was already bestowed upon them by January 1873; being so described in an article which appeared that month in the journal *Engineer*. What has never been satisfactorily established is exactly *who* gave them this name in the first place. It could have been the passengers (who were much impressed by their smart appearance and performance), or the enginemen (although they had the alternative name for them of 'Rooters'). It is also possible that it was Stroudley himself who first christened them, to his own liking. In latter days the name 'Terrier' has won general favour.

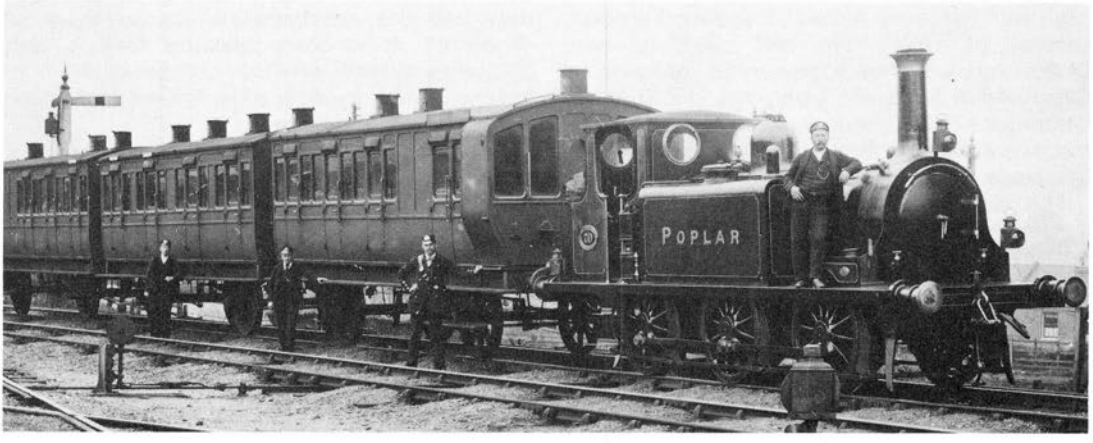
The genesis of the design can be traced back to Stroudley's HR days at Inverness, as already

Below:
The drawing depicts No 72 *Fenchurch*, as first delivered to traffic.





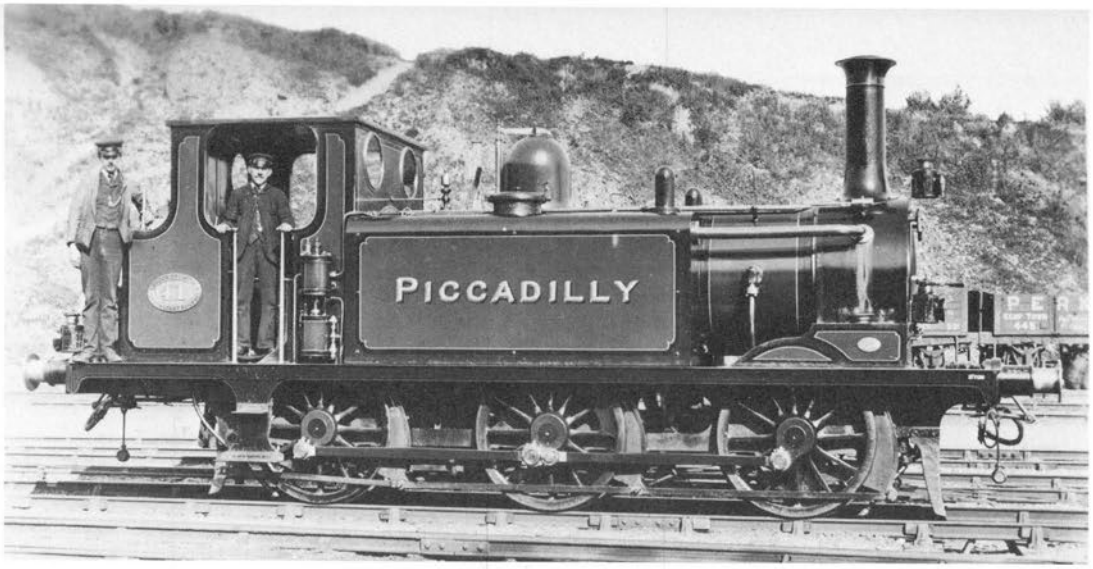




Top:
No 72 *Fenchurch*, of the first batch of 'Terriers' built in 1872, and seen here posed outside the Preston Park paintshops. Note the copper steam circulating pipe across the firebox immediately in front of the cab (a feature soon removed), and lack of Westinghouse brake equipment. The background to the numberplate appears to be in white, and there are small detail differences in the design of the tank filler cap, safety valve columns, plus the use of three link couplings, when compared to later engines of the class when new.
Author's collection

Above
A really classic Victorian photograph, showing not only a typical train of lightweight Stroudley four-wheeled suburban carriages, (in this case labelled for use on the Selsdon Road and Woodside service), but also the condition of the late 19th century LBSCR permanent way; which still demanded relatively low axle-load for the motive power. No 70 *Poplar*, and staff, are beautifully posed. The locomotive has the Westinghouse brake, with wooden brake blocks, and screw couplings, but the copper condensing pipe on the boiler side has been removed by R. J. Billinton.
Ian Allan Library/Bucknall collection

discussed on page 23, and the first drawing prepared at Brighton was for a very small locomotive, with a domeless boiler fitted with the Adams patent safety valves. When a larger locomotive was specified, the domeless boiler was retained in two further sets of drawings. The third set was approved, and construction of the first locomotives was actually underway at Brighton when Stroudley revised his ideas. The Adams safety valves had already appeared on his first two 'C' class goods engines, and they were also used on the 2-4-0s Nos 201/2/4/5 and the rebuilt 'Single' *Sussex*. In everyday use they proved troublesome, often sticking until the boiler pressure reached around 160lb/sq in or more, and then releasing the steam in spectacular fashion, upsetting passengers as well as horses and other lineside grazing animals! For the six 'Terriers' under construction Stroudley revised the boiler design, making it slightly larger and fitting it with a steam dome and spring balance safety valves.



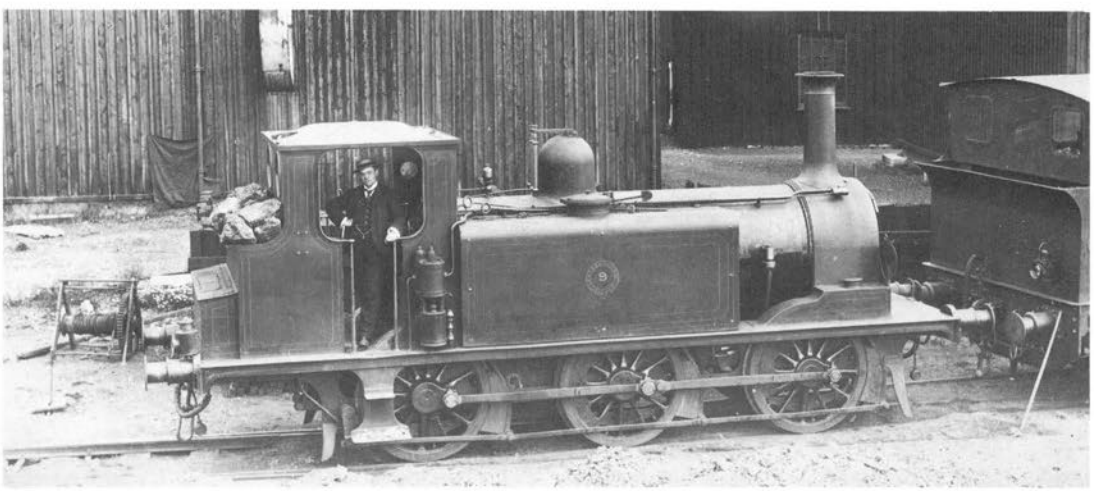
Above:
'Terrier' 0-6-0T No 41 *Piccadilly*, photographed in the typical condition of the class in Stroudley's and the earliest R. J. Billinton days. It has paused for a rest whilst shunting at Kemp Town, and is positively gleaming with polish and pride. The engine still has wooden brake shoes, and the copper condensing pipes on the boiler sides.
Bluebell RPS Archives

Left:
Bunker-end view of 'Terrier' 0-6-0T No 76 *Hailsham* showing the wooden toolbox over the bufferbeam, and the very limited coal capacity of the bunker, (emphasised in this case by the very *large* lumps of coal carried).
Ian Allan Library/Madgwick collection

The first batch of six locomotives were all built in 1872 at Brighton, and were delivered to traffic between September and December of that year, although the first examples to be completed left the erecting shops in August. This initial batch comprised the following locomotives: Nos 70-75, actually delivered to traffic in this order: Nos 72, 71, 73/4, 75 and 70. The discrepancy being due to modifications made as work progressed, in particular as a result of faulty cylinders, and the design of these was subsequently modified. These six locomotives had several features which were either discarded or changed in later engines: The most obvious feature which was discarded quickly, was a copper connecting pipe which went across the boiler immediately in front of the cab to allow the exhaust steam to circulate in the tanks. This was part of Stroudley's arrangement whereby the feed water was heated by exhaust steam from the blast pipe. This condensing layout had the added virtue of reducing exhaust problems when working in tunnels; it was controlled by means of a rod from the footplate, leaving only a small part of the blast pipe to release direct to the atmosphere, when in use. No Westinghouse air brake was fitted, and there was an ordinary three-link coupling. The brake shoes were of wood, on each wheel, and could be applied either by hand or by steam.

With valuable experience gained in traffic, and obviously pleased by the generally very favourable reception to the design, Stroudley produced a second batch, commencing in 1874; with various modifications, mostly of a minor nature. A total of 44 were added to the original six, between 1874 and 1880. Detail changes included the Westinghouse brake (fitted when new to Nos 35-40, 77-84, and later to the rest), and improved screw couplings. Nos 35-40 retained the large wooden brake shoes but the final batch were delivered new with iron shoes. A modified design of tank filler cap was a detail change on all 44 additional locos.

EARLSWOOD



10
ISLE OF WIGHT
CENTRAL RAILWAY.

No 40 *Brighton*, which appeared in March 1878 was given a special high-quality finish, (and presumably the name was no coincidence), and sent to the Paris Exhibition of 1878 where it gained a gold medal. Some demonstration running was undertaken in France, in particular to show the efficiency of the Westinghouse brake system, and it is recorded that it made a very favourable impression. Upon return to England, the prize-winning 'Terrier' was much acclaimed and the Brighton works paintshop proudly added a gold leaf inscription to the tanksides to commemorate the event, and Stroudley himself posed for official photographs to be taken (see page 8). The LBSCR directors must have been well-pleased with their choice of a successor to Craven! (In fact, as we shall see later, another Paris exhibition saw Stroudley again winning a gold medal, and *alas* dying whilst still in Paris). *Brighton* was the only one of the class to be fitted with Stroudley's patent speed recorder in the cab, which was worked by a belt-driven fan, off the rear axle.

The story of this remarkable class of locomotives, once all had been delivered to traffic, and gained for themselves such an excellent reputation, is both long and complex – and indeed unfinished! To clarify this I have decided to give some of the locomotives' small individual case histories. First of all, however, it is necessary to examine the changes made to some of them (after Stroudley's time) and the changes of fortune that affected them, in their LBSCR days and later. (Readers in search of specific technical detail changes, such as cylinder, boiler and firebox dimensional variations, are referred to the RCTS history, where Mr Bradley gives a most thorough appraisal.)

For the services for which they were originally designed, the 'Terriers' proved so successful that it became beyond their scope! Traffic steadily increased; the tracks and bridges were improved, and the carriages were enlarged in design and capacity accordingly. The 0-6-0Ts were ousted from their habitat by two factors. The first factor was the commencement of workings by the Great Eastern Railway, and the Metropolitan and District Railways, each of their own share of the East London Line services. The second, later factor, was the introduction of Stroudley's 'D' (later 'D1') class 0-4-2Ts, specifically designed to cope with the heavier loads on the busiest services. Some 'Terriers' lingered on in the London area, working for example the Wimbledon-West Croydon branch trains, but many were transferred away to country depots and to the South Coast. Shunting duties and light freight trip-working were added to their agendas; also such humble work as station piloting. Some were given branch line duties, for which of course they were most admirably suited on account of their light weight.

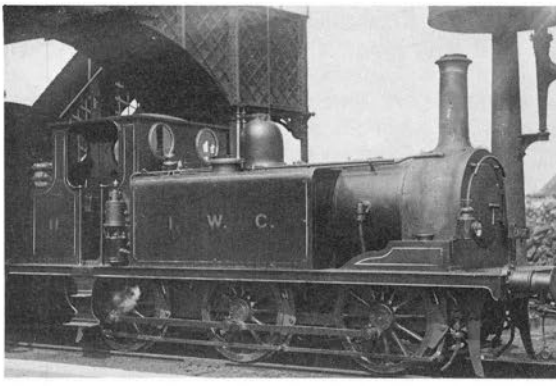
It was inevitable that, by the turn of century, the LBSCR was beginning to regard a class of 50 'Terriers' as too many for their needs, and the decision was taken in January 1899 to reduce the stock to 15 locomotives over a period of three years. Apparently, their resale for further use was not at first considered to have much potential, and the scheme was to break-up locos as they became due for heavy repairs; but subsequent events proved otherwise! The 'Terriers' soon became very desirable purchases in the eyes of a number of light railways, and the realisation of this by R. J. Billinton led to the surplus locomotives being advertised for sale. Those actually purchased are described later on; eleven examples of the first selection offered for sale by Billinton in fact did not find buyers, and were scrapped between 1901-1904 (Nos 41/5/8/51/6/8/60/64-6/74). They were cut-up by a scrap merchant using a siding near Redhill. By this time a renumbering scheme added 600 to

Top left:
A pause during shunting operations for No 83 *Earlswood*, with the Westinghouse brake pump in action. This was one of the last of the class to be built, in 1880 and has metal brake shoes; no condensing pipes on boiler side.
Ian Allan Library/Madgwick collection

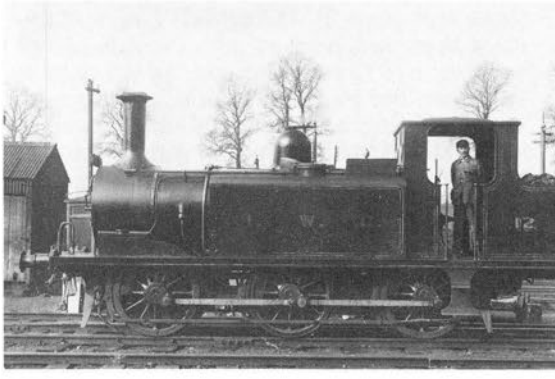
Above left:
Wonderful locomotives though they undoubtedly were, the 'Terriers' were ousted by larger types on many duties by the year 1899, and the LBSCR decided to reduce their stock of the class. One had already been sold, in the previous year to the Newhaven Harbour Company, (No 72 *Fenchurch*), and after some persistence on their part, the Isle of Wight Central Railway managed to purchase four in the period 1899-1903, (see text). The first to go to the Island was No 75 *Blackwall*, which became Isle of Wight Central Rly No 9, in 1899, and is pictured here in IWCR red oxide livery; still with white cab roof. *LPC*

Left:
Isle of Wight Central Railway No 10, formerly LBSCR No 69 *Peckham*, purchased in 1900. This received a more elaborate livery and lettering on the side tanks, otherwise both it and No 9 (previous picture) was still basically unchanged except for the removal of the condensing pipes (by R.J. Billinton), since Stroudley's days; even retaining the wooden brake shoes. *LPC*

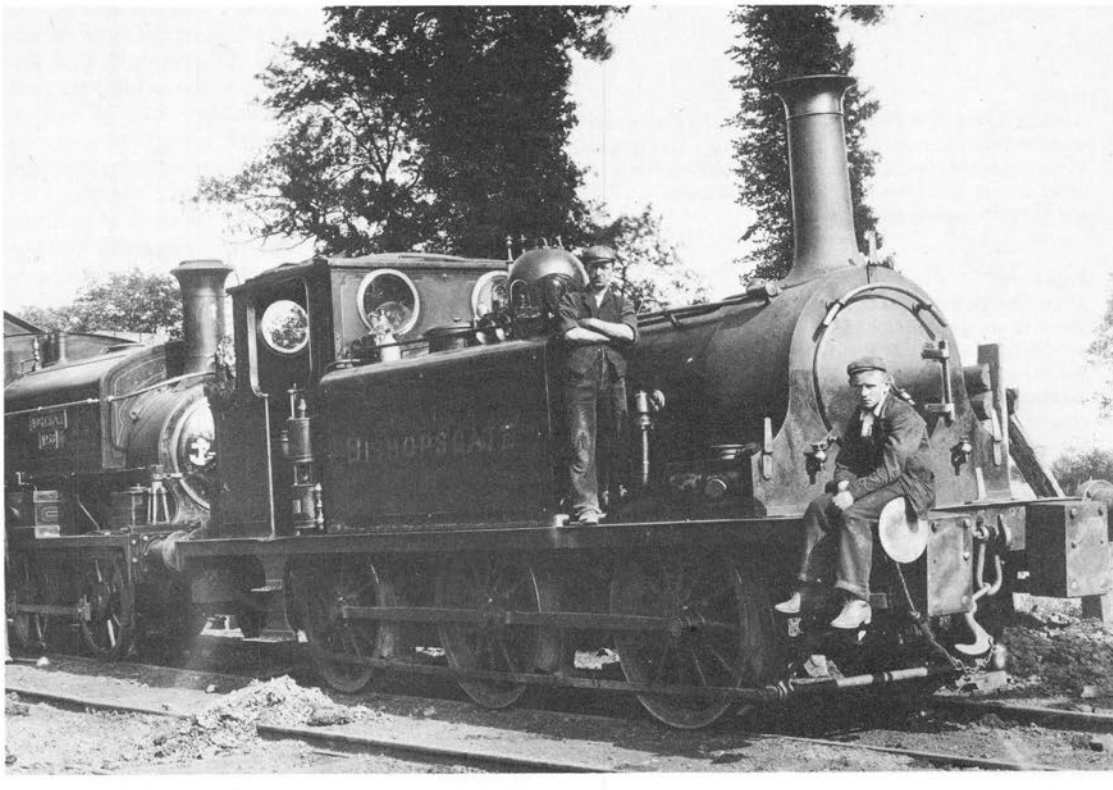
Right:
Third 'Terrier' purchased by the Isle of Wight Central Railway was No 40 *Brighton*, which became IWCR No 11. By the time this picture was taken, coal rails had been added to the bunker and the copper cap of the Stroudley chimney had suffered somewhat; losing its fine shape. The engine has cast iron brake shoes fitted, and the livery was black with white lining. *LPC*

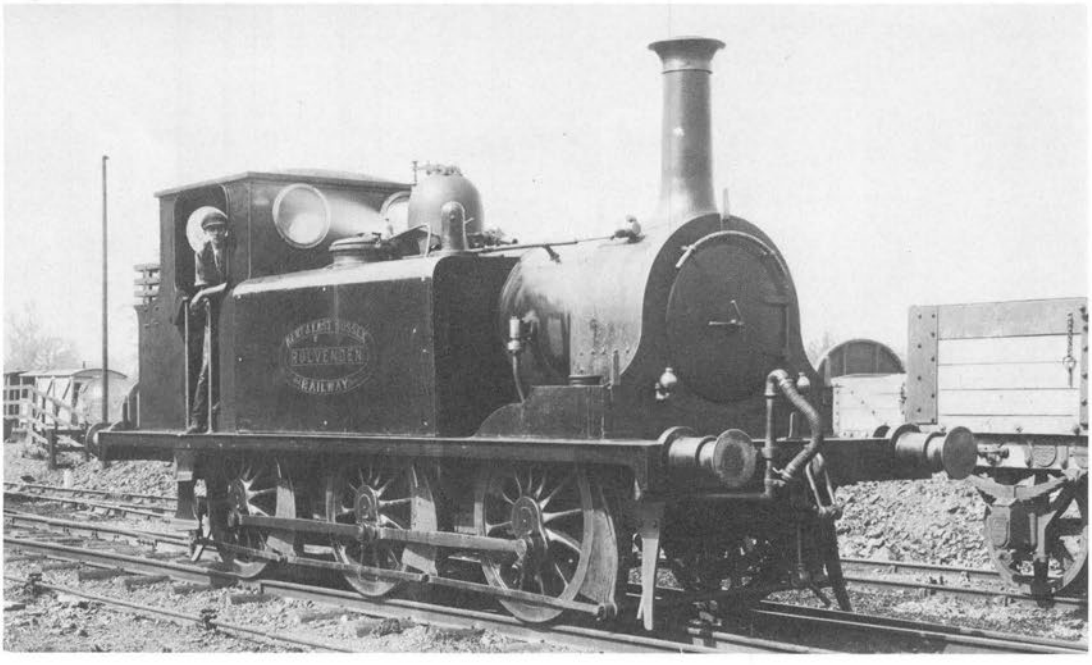


Below right:
No 12 of the Isle of Wight Central Railway was formerly LBSCR No 84 *Crowborough*; purchased in 1903. By the time this picture was taken it had been rebuilt with a Marsh 'A1X'-type boiler, with extended smokebox and the original Stroudley chimney had been replaced by a cast iron one; manufactured locally on the Island. The rear toolbox had been removed, and the coal bunker capacity extended at the rear, (the toolbox was replaced by a smaller one on top of the tank), and the livery was black with red and white lining-out. Unlike the LBSCR 'Terriers' that received 'A1X' boilers, this rebuild retained the sandboxes on the leading driving wheel splashers. *LPC*



Below:
Messrs Pauling & Co who were contracted to build the High Wycombe-Marylebone section of the Great Central Railway purchased five 'Terriers' from the LBSCR in 1902 for use on construction trains. Still in Stroudley livery, complete with the original name, *Bishopsgate* (formerly No 49) is seen here. Note the dumb buffers added to the bufferbeam and the heavy hook coupling. *LPC*



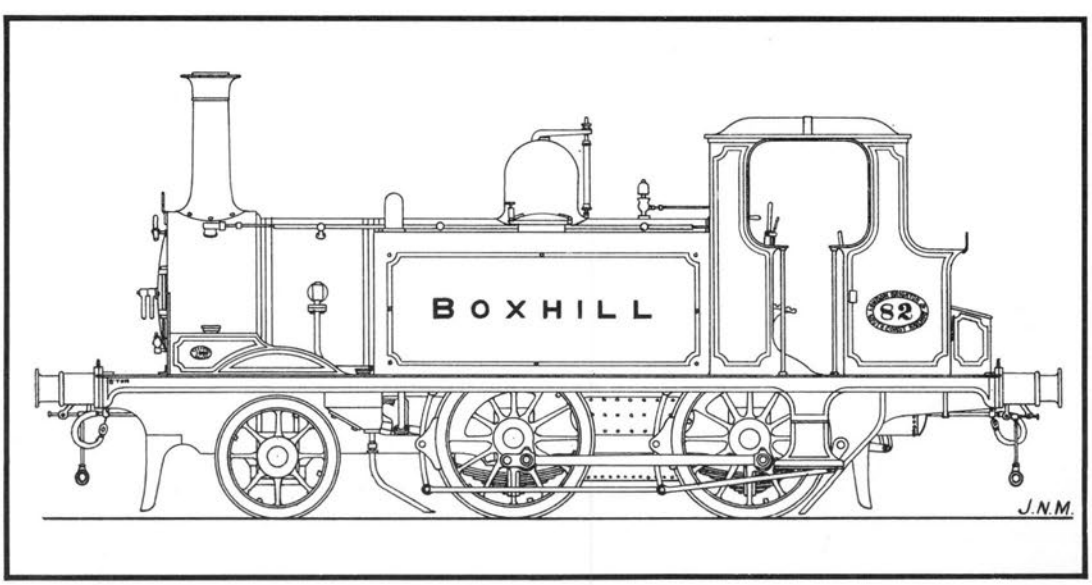


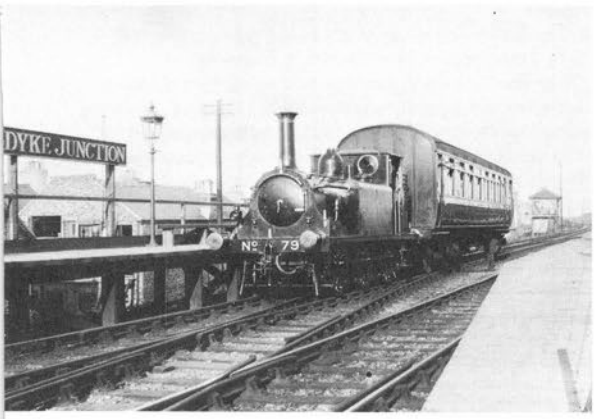
Above:
The previous year, 1901, two 'Terriers' went to the Kent & East Sussex Railway (originally called the Rother Valley Railway). They were formerly Nos 70 *Poplar* and 71 *Wapping*. Finished in a dark blue livery with red lining-out No 5 *Rolvenden* (formerly *Wapping*) is seen soon after purchase. Note the lack of the Westinghouse air brake, and wooden brake shoes. The very light K&ESR permanent way is well portrayed – typical of that on lines which found the Stroudley 'Terriers' useful, on account of their light weight but powerful capacity. *LPC*

Below:
Two 'Terriers' were purchased in 1903 by the London & South Western Railway, at Dugald Drummond's suggestion, for use on the Axminster-Lyme Regis branch. These were Nos 646 *Newington* and 668 *Clapham*, which became LSWR Nos 734/5 respectively. Both received Drummond boilers in 1912, complete with his characteristic safety valves on the dome, and coal rails were added to the bunker top. In 1913 No 734 was loaned to the Freshwater, Yarmouth & Newport Railway on the Isle of Wight, and the FYNR purchased it the following year. In this photograph taken at Newport at the head of seven four-wheelers, No 734 is still in LSWR livery, (which it kept until 1917 when it was repainted bright emerald green and given the number 2 of the FYNR). The light permanent way and apparent lack of ballast is again noteworthy! *LPC*

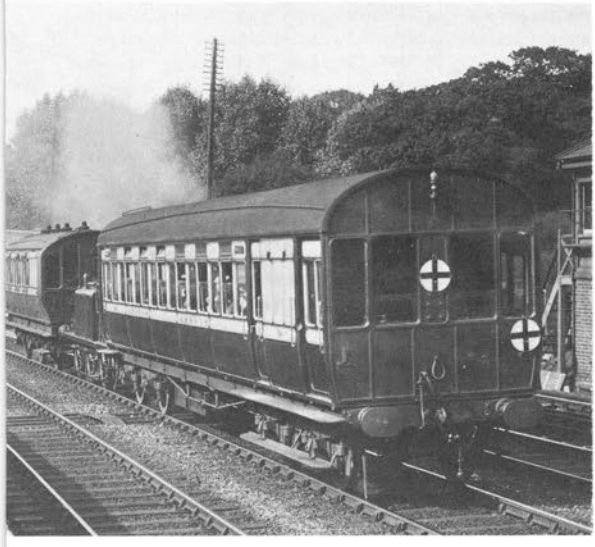
Above:
The decision to experiment with 'motor-trains' saved the lives of most of the 'Terriers' that still belonged to the LBSCR in 1905. New high capacity trailer carriages were built, and the first experiments were made with 'Terriers' No 81/2. (There were also two steam railcars and two internal combustion railcars on trial.) No 82 *Boxhill* was converted to a 2-4-0T; followed by No 81 *Beaulah*, and some detail modifications were made, including slightly raised buffers in larger housings. The motor-train operating gear was by means of a rod passing under the rear buffer beam, to the control end of the trailer. No 82 *Boxhill* is pictured here at Kemp Town station, in experimental livery of dark goods green with full lining-out, (No 81 *Beaulah* was finished in Marsh's umber brown). Posed alongside the engine is the guard/conductor, with the fireman in the cab and the driver complete with oil can. Note the great height of the carriage roof compared to Stroudley's neat little engine! *Ian Allan Library/Madgwick collection*

Below:
A drawing by J.N. Maskelyne depicting No 82 *Boxhill* as converted to a 2-4-0T for 'motor-train' use. Note the resited sandbox ahead of the leading coupled wheel, *under* the footplating. The small carrying wheels were taken from Class D3 0-4-4T No 393's bogie – one for each 'Terrier'. (It is not clear what happened to No 393 in the meantime!) Both were reconverted to 0-6-0Ts in 1913. *Author's collection*



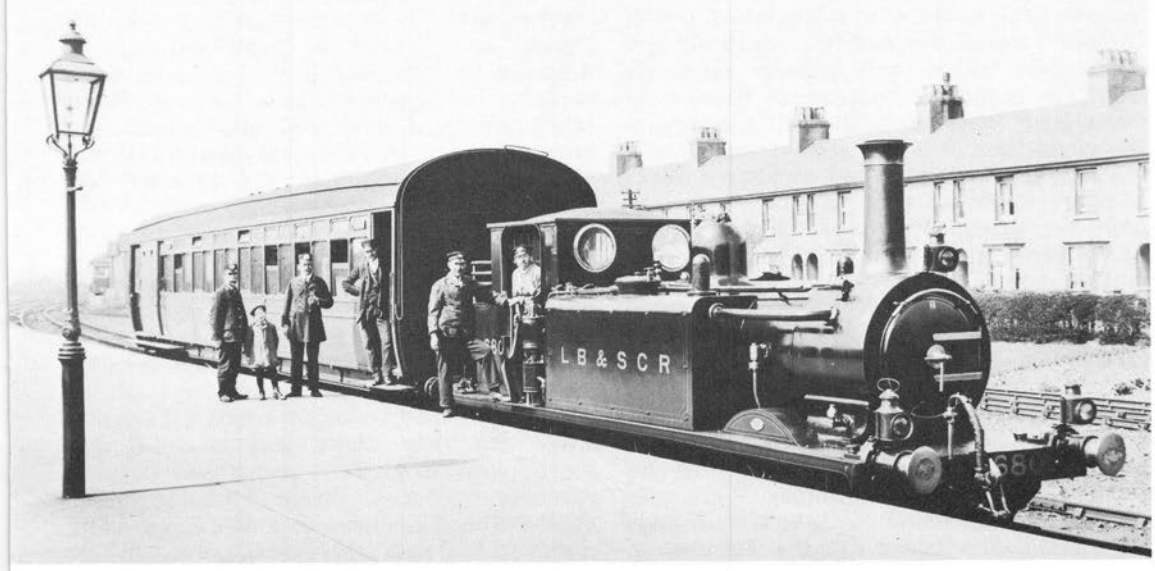


Left:
Class A1 'Terrier' 0-6-0T No 79 *Minories* propels its trailer car away from the wooden-built Dyke Junction halt, soon after the introduction of further 'Terrier' conversions and new motor-train carriages in 1906; the locomotives, however, retaining their 0-6-0T wheel arrangement, and regaining condensing pipes on the boiler sides. The livery chosen was Marsh umber brown, and the trailer cars were in matching umber brown with cream upper panels.
Bluebell RPS Archives



Below left:
What a curious effect such a sight must have had upon the uninitiated! With the motor-train trailer leading, an unidentified 'Terrier' is sandwiched in the middle, and a six-wheeled brake/compartment carriage is at the far end to give added capacity. Note the whistle high up on the carriage end, above the driving cab windows, and locomotive-type headcode discs carried. It is said that the almost silent approach of these trains, when running with the 'Terrier' at the rear, was a cause of some concern for safety on the line, and the whistle was used frequently! Photographed passing Balham Intermediate signalbox.
LPC

Below:
'Terrier' No 80 *Bookham* (renumbered 680) was fitted with Marsh's motor-train gear in 1908, and in 1912 it was rebuilt, being one of 12 of the class, so equipped that were selected to receive new boilers of Marsh design, over the period 1911-1913, and which became known as the 'A1X' class. Pictured here at Littlehampton in 1913, on an Arundel-Ford-Littlehampton motor-train, No 680, in Marsh umber livery and without name, shows the larger smokebox; modified leading splashers without sandboxes and wingplates; condensing pipes and bunker coal rails, that were evidence of the rebuilding. In this case the original Stroudley chimney has been retained.
O. J. Morris/Bluebell RPS Archives



the running numbers, to make way for new Billinton locomotives, and when withdrawn Nos 45/8/56/8/60/4 had been so altered, the rest being scrapped whilst still in their original colourful identities.

In 1905/6 it looked as though the fate of the remaining locomotives of the class in LBSCR stock was distinctly gloomy; with withdrawal of another 15 locomotives already proposed, plus some which were already in store pending cutting-up, or sale for scrap. Then fate, as is its wont, played a hand in their favour, when it was realised that they perhaps had a new, and very useful role to play in powering the push and pull 'motor-trains' which the LBSCR initially wanted to introduce between Brighton and Worthing. The idea was to encourage *local* rail traffic, to feed the main line trains; experiments also being made with both steam and petrol railcars, as alternative modes of travel; without great success. For the 'motor-trains' new control trailer carriages were provided, (which because of their high roof, became known as 'balloons'), with driving controls at one end and the 'Terriers' had to be fitted with the necessary control gear. This new role for the 'Terriers' was commenced when D. E. Marsh had succeeded R. J. Billinton, and it can be seen that Billinton himself did little work upon the class during his term of office.

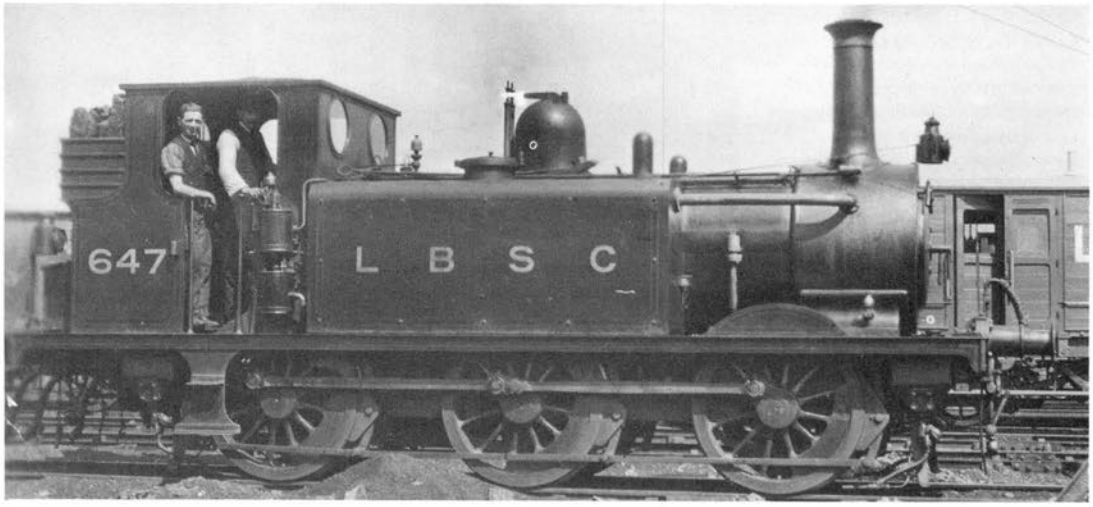
In 1905 Marsh converted 'Terrier' 0-6-0Ts Nos 81/2 into 2-4-0Ts, by replacing the leading coupled wheels with a small carrying pair of 2ft 9in diameter, and the locomotives were put to work on 'motor trains', where the conversion to 2-4-0T apparently did not prove particularly satisfactory, because they were both altered back, in 1913, to 0-6-0Ts. A further 20 0-6-0T 'Terriers' were meanwhile converted to 'motor-train' work, and proved extremely useful, in particular because of their rapid acceleration from rest with such a comparatively light load. The 'motor-train' locos had a new high-pitch whistle fitted, and some minor cylinder improvements were made. An interesting modification was the replacing of the condensing pipes; in order to reduce fuel consumption. The locomotives modified for 'motor-train' work were Nos 643/61/3/73/4/9 in 1906; Nos 35, 642/4/7/50/5/67/77/8 in 1907; Nos 653/9/80 in 1908, and Nos 662/83 in 1909. Without doubt it saved the lives of the engines concerned, and some were destined to remain in use long after the 'motor-trains' had grown to a size too heavy for them to handle. At this period the distinctive Stroudley livery was replaced by the Marsh umber, with orange lining and gold lettering, and the 'Terriers' no longer carried their names on the tanksides. The capacity of their coal-bunker was increased, by the addition of coal rails.

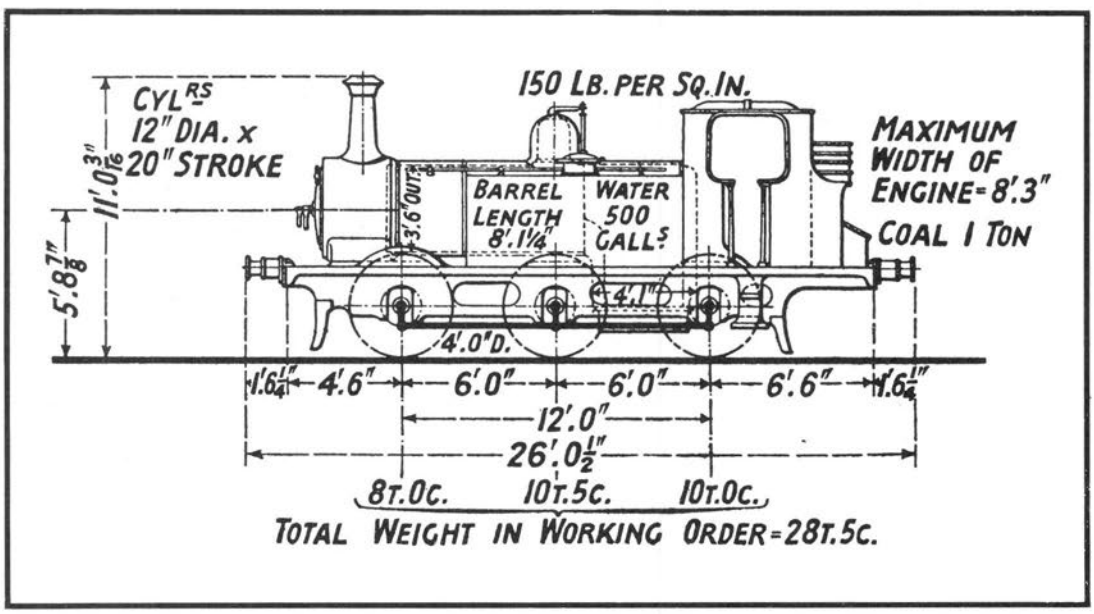
When Mr L. B. Billinton took over from Mr Marsh as Locomotive Superintendent at Brighton in 1911, some of the class were showing their age, in particular in the condition of their boilers. A scheme to reboiler some had been proposed in 1906; but Marsh had not received approval. Now the scheme was agreed, in order to prolong their useful life on 'motor-trains', and Lawson Billinton fitted 12 new boilers in the period 1911-1913 to Nos 644/7/53/5/61-63/73/77-80. Four more were dealt with after World War 1, Nos 635/43/50/9, and in addition 3 new boilers were supplied for examples of the class that had been sold for further use (see relevant case histories). Marsh had designed the boiler, on which the existing small Stroudley dome was retained, but moved forward slightly, and a new circular, extended smokebox was fitted; resting upon a saddle. The wingplates and sandboxes were removed, and new steam-operated sandboxes

Right:
A charming study of an 'A1X' rebuild, taken at Brighton in 1919. Features to note on No 647 (formerly No 47 *Cheapside*), are the plated coal rails to increase bunker capacity; Stroudley dome retained, but moved forward by some inches; condensing pipes retained; sandboxes relocated below footplating ahead of leading coupled wheels and operated by steam; larger smokebox resting on a saddle; cast iron clasp brakes, and original Stroudley copper-cap chimney retained. *A. B. MacLeod*

Below right:
Weight diagram for the Class A1X rebuild of the 'Terriers' as operating on Southern Railway.

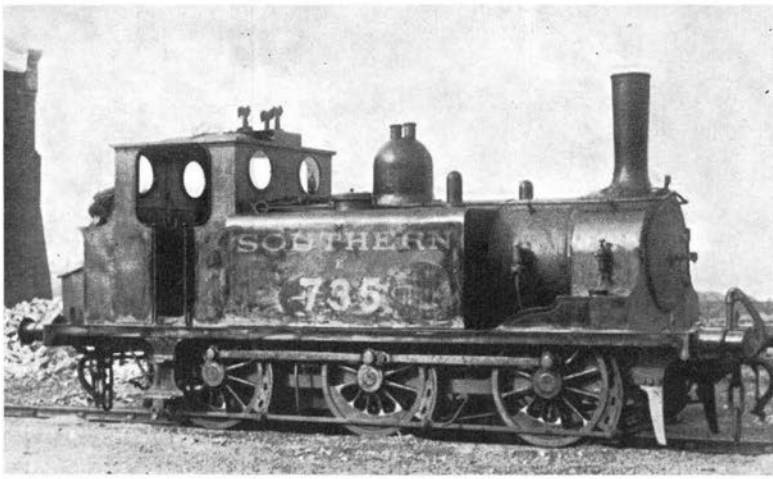
Bottom right:
In 1904 the South Eastern & Chatham Railway had purchased a single 'Terrier', No 654 *Waddon*, for use on the Isle of Sheppey Light Railway, for which it was altered to vacuum braking. No 751 of the SE&CR stocklist, and painted in full Wainwright green livery, it ran with its Stroudley boiler until 1909/10, when a new one of Wainwright design was put on at Ashford works. This had a dome, with separate Ramsbottom safety valves placed over the firebox; with the whistle perched high behind them. Its final years on the SE&CR were in the wartime grey livery, with large white numerals; mostly at Folkestone Harbour. Taken into SR stock at the Grouping, it was remarkably still in grey livery when this picture was taken at Eastbourne shed on 5 August 1932! Minus coupling rods, and with a quaint spark-arrestor on the chimney, it was being used as a stationary boiler during some pulverised fuel experiments with the Maunsell Class U 2-6-0 No A629, in the background (SE&CR plate still on No 751's bunkerside, and still fitted with wooden brake shoes). *H. F. Wheeller*


647
L B S C

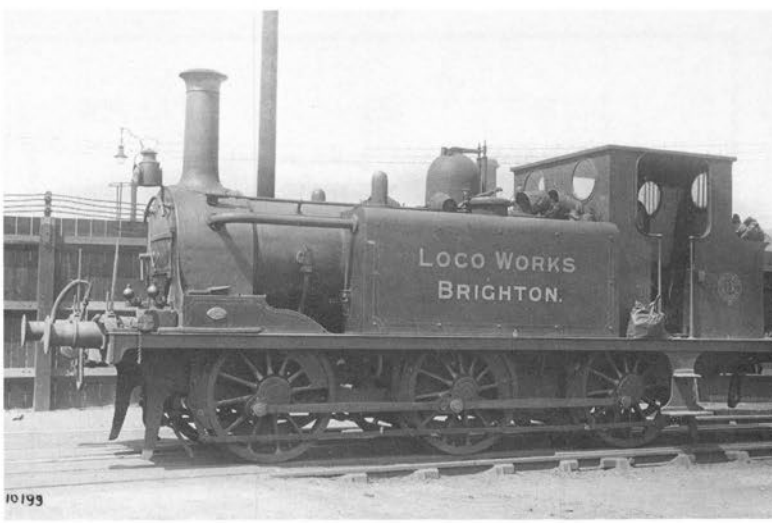

CYLRS
12" DIA. x
20" STROKE
150 LB. PER SQ. IN.
MAXIMUM
WIDTH OF
ENGINE=8'.3"
COAL 1 TON
BARREL
LENGTH
8'.1¼"
WATER
500
GALLS
3'.6" OUTS
4'.1"
4'.0" D.
11'.0 3/16"
5'.8 7/8"
1'.6¼"
4'.6"
6'.0"
6'.0"
6'.6"
1'.6¼"
12'.0"
26'.0½"
8T.0C.
10T.5C.
10T.0C.,
TOTAL WEIGHT IN WORKING ORDER=28T.5C.

751

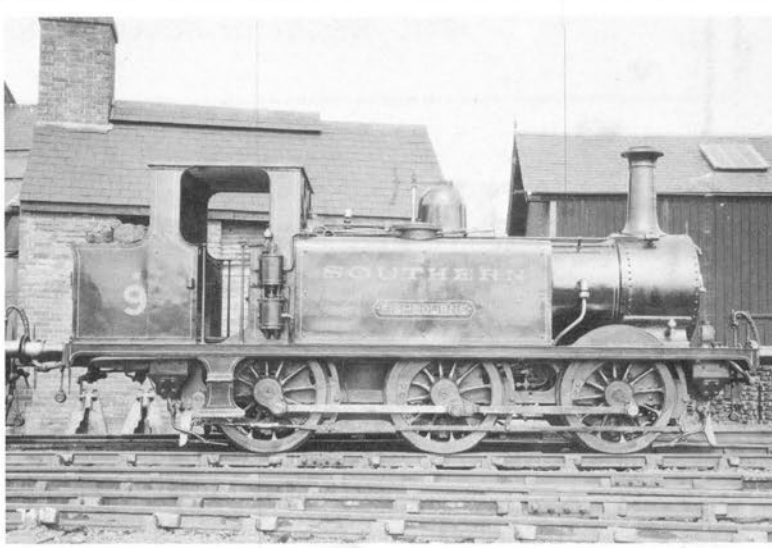
Right:
No 735, the remaining LSWR 'Terrier', (after the sale of No 734), lingered-on in use because of its new Drummond boiler; mainly used for 'motor-train' work on the Lee-on-Solent Light Railway. By 1919 it was in poor condition, due to wartime neglect of repairs, and withdrawal was proposed. Reprieve followed, and it was repaired at Eastleigh in 1920, during which event it received an ugly stovepipe chimney, welded to the original Stroudley base. The small object visible on the smokebox side was a cylinder lubricator; also added. Note the unusual style of cast iron brake shoes, using the old hangers intended for wooden shoes. The objects on the cab roof were pulleys for the motor-train operating system. No E735 is seen in Maunsell green SR livery, prior to replacement of the worn-out Drummond boiler by one of 'A1X' pattern in 1930.
Author's collection



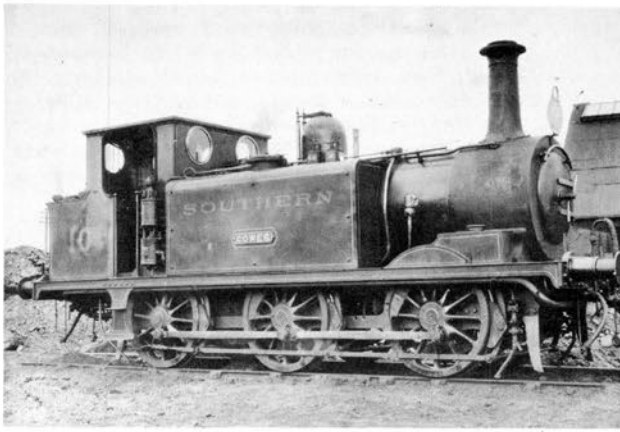
Above right:
Old No 682 *Boxhill*, still in Stroudley's 'A1' class condition, was retired from 'motor-train' duties, and by 1920 it had become the Brighton Locomotive works shunter. Painted in umber brown, it was lettered *Loco Dept Brighton Works*, and had the lovely LBSCR coat-of-arms on the bunkersides. When taken over by the SR at the Grouping, the umber brown was at first retained (later changed to black), but the lettering was altered to read as seen in this photograph, and the bunker carried a circular motif lettered 'Southern Railway' with a large 'B' centrally placed. It became service stock No 380s in 1932. *LPC*



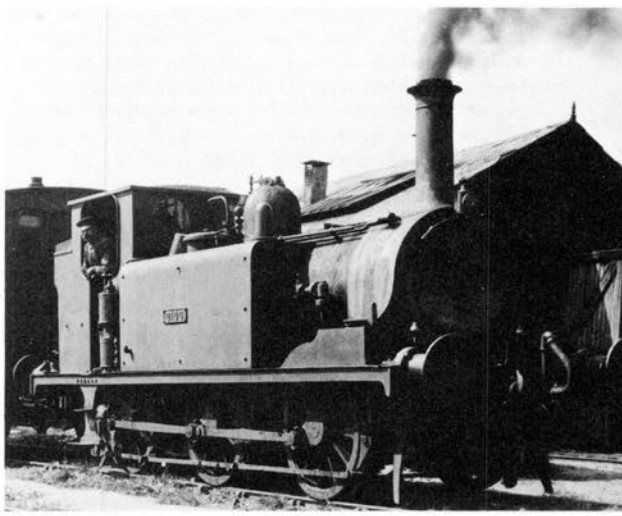
Right:
Replacement locomotives became necessary on the Isle of Wight system by the late 1920s, as some of the original secondhand 'Terriers' were wearing-out. Class A1X No 650 with a Marsh chimney, was modified at Brighton works in 1930 with an enlarged coal bunker, and shipped to the Island to become No W9 *Fishbourne*. (Since 1928 all the Island 'Terriers' had been given names; with neat brass nameplates on the tanksides.) *LPC*



Right:
Isle of Wight 'Terrier' No W10 *Cowes* is illustrated, as fitted in 1923 with an 'A1X'-type boiler without condensing pipes; Marsh cast iron chimney; extended coal bunker, steam-operated sanding gear, (but with the original sandboxes retained on leading splasher), and fitted for 'motor-train' working. *LPC*



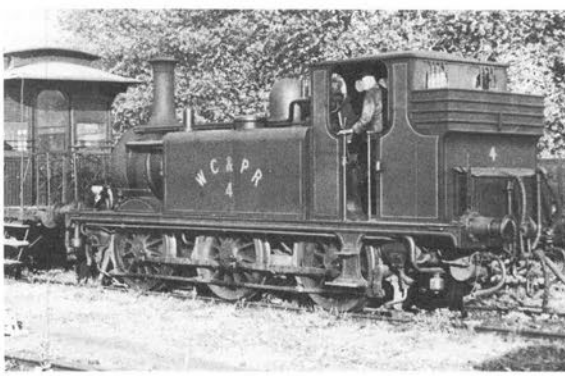
Below right:
During World War 1 some 'Terriers' were conscripted for Admiralty use in places like Chatham Dockyard. In 1918 five were sold to the Admiralty, (see text), and in 1921 two were stored as surplus to requirements; Nos 638/83. These were sold to the Shropshire & Montgomeryshire Light Railway in 1923, becoming Nos 8 *Dido* and 9 *Daphne* respectively. (Earlier No 681 had been purchased from the Admiralty and had become No 7 *Hecate*.) No 8 *Dido* (originally No 38 *Millwall*) is seen here at Kinnerley on the S&MLR on 28 August 1926. Still with a Class A1 boiler and Stroudley chimney, the most noticeable changes (probably made by the Admiralty), are the huge circular buffers, and the plated extension to the top of the coal bunker. *H. C. Casserley*



Below:
Class A1X 'Terrier' No 2647, photographed at Newhaven in 1936, after an intermediate repair, (note the repainted chimney, smokebox and bunker). Fitted for 'motor-train' work, the locomotive has a Drummond pattern chimney, which was carried by six of the class, as follows: Nos W10, W11, W14, 2647 and service locos Nos 380s and 680s. Of additional interest is the location of this photograph, on the Eastern harbour branch at Newhaven, which was laid with such light track that only this class was permitted to use it in SR/early BR days and an official notice to that effect was specially painted and erected, using the nickname 'Terrier'! *C. C. B. Herbert*

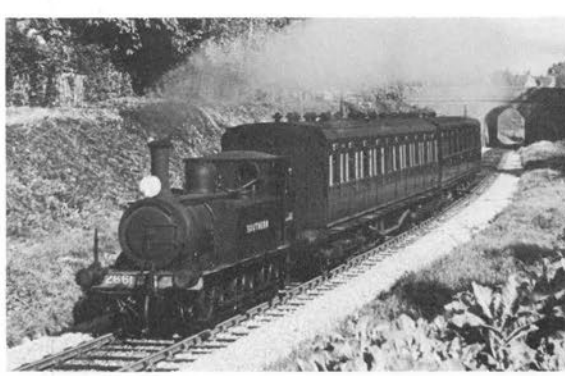
Two 'Terriers' were sold in 1919/20 to the Edge Hill Light Railway: Nos 673 of Class A1X in 1919, and 674 of Class A1 in 1920: becoming EHLR Nos 1 and 2 respectively. Both retained Marsh umber brown livery. In 1925 the line was closed to traffic and then the two 'Terriers' were left standing in the open (originally sheeted-over), for no less than *21 years!* The ravages of time weathered away the paint and pieces were stolen, or vandalised, before cutting-up finally took place in 1946. Nevertheless the 'A1X', No 1, seen in its forlorn setting on 8 June 1939; was still basically intact before the war years. *H. C. Casserley*

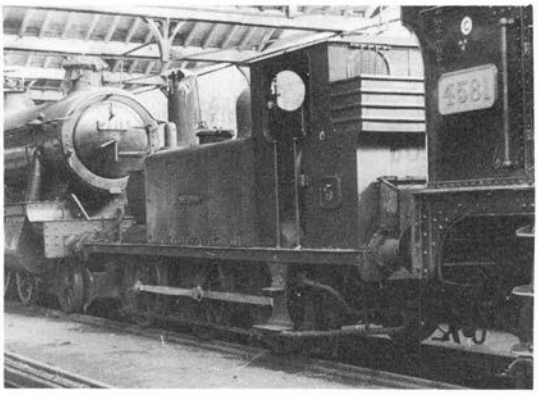
The Weston, Clevedon & Portishead Railway purchased two 'Terriers', No 643 (originally No 43 *Gipsyhill*) in 1925 and No 2653 (originally No 53 *Ashstead*) in 1937. They became WC&PR Nos 2 *Portishead* and No 4, (no name) respectively. The latter is seen here attached to an open verandah-ended saloon carriage, purchased by the WC&PR but originally designed and built for more exotic climes! No 4 had both Westinghouse and vacuum brakes and retained the 'motor-train' controls; Class A1X boiler and Marsh chimney; plated coal rails to coal bunker.
Walter Gilburt/Bluebell RPS Archives



By 1932/3 one of the two Kent & East Sussex Railway 'Terriers', No 5 *Rolvenden* was no longer serviceable and it was slowly cannibalised to provide parts to keep No 3 *Bodiam* working. No 3's boiler finally packed-up in 1943, and the K&ESR then purchased an 'A1X'-type boiler from the SR as a replacement; the job of fitting it being undertaken at St. Leonards shed by two K&ESR fitters, with expert SR assistance. Pictured here at Robertsbridge on 26 April 1947 No 3 shortly afterwards went to Brighton Works for heavy repairs; re-emerging in lined green livery. The following year saw it taken into BR stock and it became No 32670, keeping the green livery for a while. When withdrawn in 1963 it was purchased for preservation. (See Appendix 1.) Points of interest are the built-up coal bunker with one small coal rail; original type combined sandbox and splashers retained; vacuum brake fitted, and Stroudley chimney top still intact. *H. C. Casserley*

Class A1X 'Terrier' No 2661 (originally LBSCR No 61 *Sutton*) in the plain black livery adopted by the SR during World War 2, with the yellow and green 'sunshine'-style lettering for the word 'Southern' on the side tanks. Photographed in September 1949 the engine is bustling along with a two coach Havant to Hayling Island train. Note the circular patch on the front of the side tank, where the condensing pipe used to be attached. *P. C. Short*





Above:
It is doubtful if any other British steam locomotive class has had such a long and varied career, or boasted so many owners as can be attributed to Stroudley's 'Terriers'! Perhaps the most unlikely owner of all was the mighty Great Western Railway, which (probably reluctantly) inherited the two Weston, Clevedon & Portishead Railway 'Terriers' in 1940, when the WC&PR was liquidated, after closure due to wartime conditions. WC&PR No 2 *Portishead* and No 4, became GWR Nos 5 *Portishead* and 6 respectively, and appeared in green livery complete with typical Swindon numberplates, and circular GWR monogram to replace the previous ownership numbers and initials. No 5 *Portishead* proved to be in better condition than No 6 (which was stored in 1942 at Bristol St Philips Marsh shed, and condemned in 1948), and *Portishead* served the GWR well; ending up as shed pilot at Newton Abbot. In 1950 it was sent to Swindon for storage, (seen there on 30 May 1950 in company with Class 4575 2-6-2T No 4581 and 'Hall' class 4-6-0 No 7913 *Little Wyrley Hall* which were also stored). Perhaps the GWR had hopes of finding a buyer, because it was not cut-up until 1954; well into the British Railways era. What a pity it was not preserved! *H. C. Casserley*

were placed below the running plate. The chimney carried depended upon the state of the original, and if in good condition it was reused, complete with Stroudley's elegant copper-cap, otherwise a castiron version by Marsh replaced it; of slightly less attractive proportions. Castiron brake shoes became standard for the class and the coal bunker top had rails, backed by metal plating. These reboilered 'Terriers' became Class A1X. (See table at end of Section for dimensional details.)

The 'A1X' rebuilds proved a good investment, and in the period 1912-1914 the 'motor-trains' were their special domain; with the new boiler proving to be an excellent steamer, and easy to maintain. Even into the World War 1 period all the class, except two, were busily employed on 'motor-train' work, although they were not much in evidence on the heavy London area duties; mostly being transferred to the South Coast and some country sheds. The two exceptions, not used for 'motor-train' work were Nos 637/8 of Class A1, which spent their time as shed pilot at Battersea and works pilot at Brighton, respectively. These two, plus four more, Nos 667/74/81/3 and two Class A1X, Nos 673/9, were sold out of service in the period 1918-1920; as described in the case histories. The two 'pilots' were replaced at Battersea and Brighton by Nos 642 and 682, and these were the last two Class A1 version still in service on the LBSCR, at the time of the Grouping. All the rest were Class A1X, as follows: Nos 635/43/4/7/50/3/5/9/61-63/77/8/90.

The new Southern Railway found itself with a larger stock of Class A1/A1X 'Terriers' than the LBSCR, however, as a result of inheriting some examples owned by other railways, which had obtained them secondhand! These were as follows: Class A1 No 668 (as LSWR No 735); No 654 (as SECR No 751); Nos 75 and 69 (as Isle of Wight Central Railway Nos 9,10); No 646 (ex LSWR No 734; then Freshwater, Yarmouth & Newport No 2). Two Class A1X also came into the fold: Nos 40 and 84 (Isle of Wight Central Railway Nos 11/2). Finally, yet another 'A1X' was taken into stock, from the Newhaven Harbour Co; old No 36 *Fenchurch.* Three of the Class A1 locomotives had boilers of non-standard design; fitted while in SECR and LSWR service.

The independent Isle of Wight systems now came under the single control of the SR, and the 'Terriers' were to remain a useful part of the Island's locomotive stock until after Nationalisation; various changes taking place in the actual allocation (see table). On the Island, and the mainland, the SR gave the class passenger green livery, and the Isle of Wight locomotives had the added distinction of nameplates. Extended coal bunkers were a special requirement and Brighton works added this feature to further locos sent there: Nos 650, 677/8. In 1936 the 'Terriers' were showing signs of age, and the trainloads were telling on them, and four engines were shipped back to the mainland (see table), donating their nameplates to the Class 02 0-4-4Ts that took their place. Three remained, all fitted with 'motor-train' controls, and these were not shipped back until 1947/9; all three being overhauled and put to work on the Hayling Island service.

Class A1/A1X 'Terriers' used on the Isle of Wight:
(* Denotes Isle of Wight SR numbering and name)

LBSCR No	*Name*	*SR/BR Nos*	*Details*
40	*Brighton* *Newport**	W11*/2640, 32640	Sold in 1901 to Isle of Wight Central Railway, as No 11. Rebuilt to 'A1X' in 1918. Returned to mainland, 1947. Preserved by Wight Locomotive Society, Haven Street, IOW.
46	*Newington* *Freshwater**	W2*/W8* 32646	Sold to LSWR (who fitted Drummond boiler later) in 1903 for Axminster-Lyme Regis branch. Loaned in 1913, and sold to Freshwater, Yarmouth & Newport Railway in 1914, as No 2. Rebuilt to 'A1X' in 1932. Returned to mainland, 1949. Preserved at Isle of Wight Steam Railway, Haven Street, IOW.
50	*Whitechapel* *Fishbourne** *Sutton‡*	B650/W9* 515s. DS515 32650	Rebuilt to 'A1X' in 1920; then modified for IOW use, sent 1930. Returned to mainland 1936; allocated to departmental stock Lancing carriage works. Returned to BR main stock 1953. Preserved by Borough of Sutton; on loan to K&ESR, Rolvenden. ‡ Now carries the name of No 61 *Sutton*.
69	*Peckham* *Cowes**	W10*	Sold in 1900 to Isle of Wight Central Railway, as No 10. Rebuilt to 'A1X' in 1923. Returned to mainland in 1936 and stored. Cut-up 1949.
75	*Blackwall*	W9*	Sold to Isle of Wight Central Railway in 1899, as No 9. Scrapped 1927, and replaced by No 50 (see above), which also became No W9.
77	*Wonersh* *Carisbrooke**	W3* W13* 32677	Rebuilt to 'A1X' in 1911. Modified for IOW use in 1927. Returned to mainland in 1949. Withdrawn 1959; cut-up.
78	*Knowle* *Bembridge**	B678, W4* W14* 2678, 32678	Rebuilt to 'A1X' in 1911. Modified for IOW use 1929. Returned to mainland 1937. Preserved by Resco (Railways) Ltd, London.
84	*Crowborough* *Ventnor**	W12*	Sold to Isle of Wight Central Railway in 1903. Rebuilt to 'A1X' in 1916. Returned to mainland in 1936 and stored for spares. Cut-up in 1950.

Meanwhile the SR had sold two locomotives to the Weston, Clevedon & Portishead Railway: No 643 in 1925 and No 652 (2653) in 1937, and a few had been scrapped, including two from the Isle of Wight, but the majority of the 'Terriers' continued to give yeoman service, and when nationalised in 1948, the SR handed over 1 Class A1 and 14 Class A1X's to British Railways. These were (Class A1): No 680s (departmental stock) and (Class A1X): Nos 377s and 515s (departmental stock); Nos W8 *Freshwater* and W13 *Carisbrooke* (Isle of Wight stock), plus Nos 2636/40/4/7/55/9/61/2/78. (The 2000 having being added to the previous numbering by the SR.) The GWR also handed-over one 'Terrier' in 1948; their No 5 *Portishead* obtained *via* the Weston, Clevedon & Portishead Railway, (see case histories.) More surprising was the addition of a *preserved* example! This was No 82 *Boxhill*, which the SR had restored to Stroudley condition and livery at Brighton in September 1947, afterwards using it at various special events, including the Waterloo station centenary, (see Appendix 1.) This same period had seen one 'Terrier' (No 515s, departmental shunter at Lancing works), temporarily converted to an oil-burner; without great success.

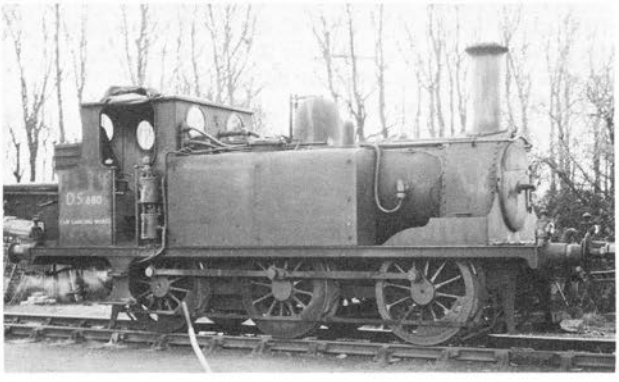
It would not have been surprising if the inclusion of some 75-year-old, or thereabouts, steam locomotives in the BR stockbook would have spelled early demise in the eyes of the accountants. Not so in the case of the 'Terriers' however! The Hayling Island branch, in particular, relied upon them and the Kent & East Sussex was another special area of operations for them. The Newhaven Harbour tramway, and the Lancing carriage works system were also 'Terrier' territory. Thus, Brighton works continued to overhaul the class, until closure, and then finally Eastleigh kept them in good order. No 32646 (originally No 46 *Newington,* built at Brighton in 1877) was the last locomotive fully repainted after

Above right:
Still proudly sporting a Stroudley chimney, and in clean SR Bulleid malachite green livery, Class A1X No 32677 (formerly SR No W13 *Carisbrooke*, and originally LBSCR No 77 *Wonersh*), is seen at Hayling Island on 3 September 1949. The malachite green livery was applied when the loco was still on the Isle of Wight, (also the shaded lettering 'British Railways' – placed high to leave room for the nameplate). When the surviving three 'Terriers' were returned to the mainland by the spring of 1949, they lost their nameplates, and received BR running numbers on smokebox and bunkersides. No 32677 was scrapped in 1959.
C. C. B. Herbert

Right:
The Brighton Works shunter No 380s (old No 82 *Boxhill* see page 50), was replaced by 'A1X' class No 2635 in 1946 and the latter was given the number 377s in Service Stock. In 1947 the SR painted its shunter in full Stroudley livery and placed a copper rim over the Marsh chimney; the effect being not quite so elegant as the original Stroudley design, but nevertheless a most welcome touch of colour in the atmosphere of postwar gloom immediately preceding nationalisation! When Brighton works was closed, the shunter was returned to general stock and received the number 32635, in January 1959, although still carrying the legend 'Brighton Works' on the tanksides. Photographed on shed at Brighton on 17 September 1960. *R. K. Evans*

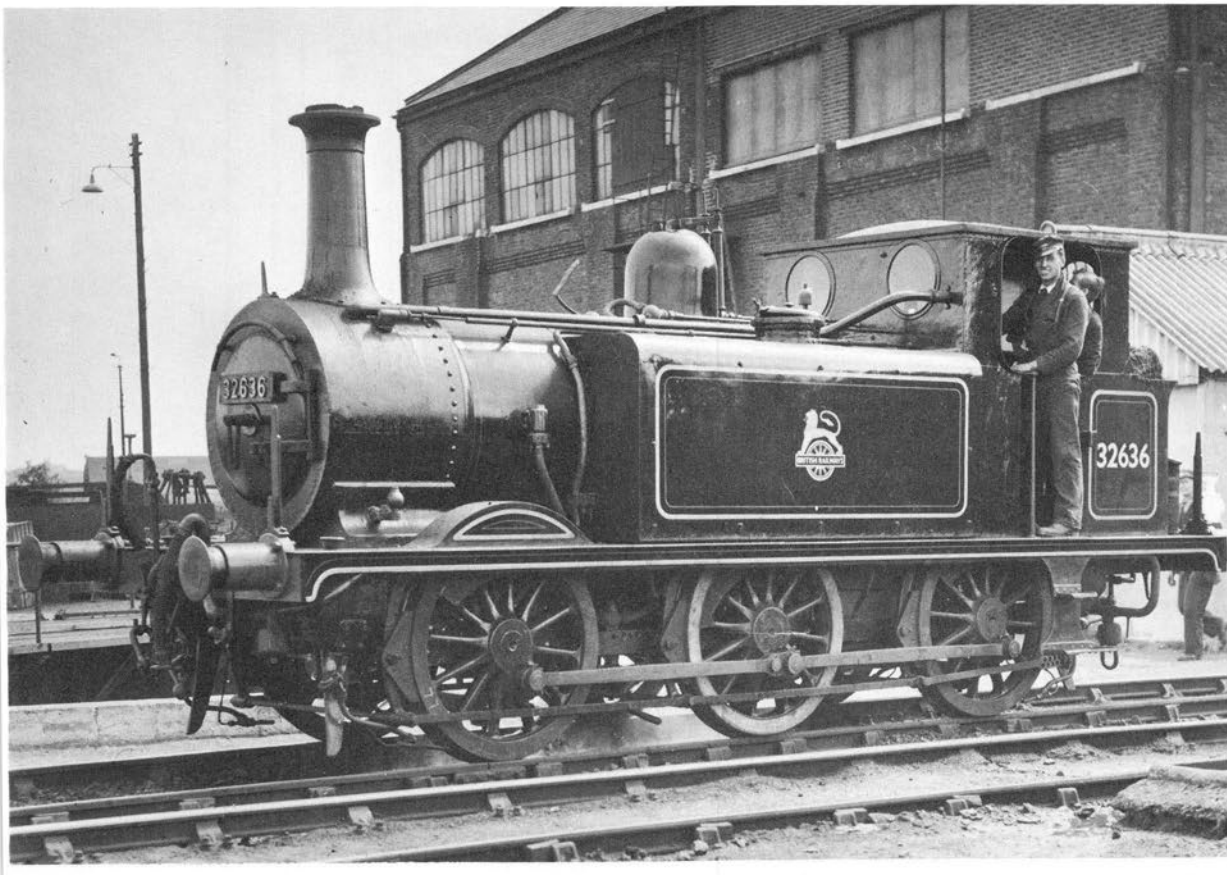
overhaul, before Brighton works closed down, in February 1958.

The inevitable run-down came with the smell of diesel fumes in 1958 on the Kent & East Sussex, which was itself in decline, and in due course they ceased to be used on the line. Closure of Brighton works made the departmental shunter No DS377 redundant, but in such good condition that it was returned to BR stock as No 32635 in 1959. That year saw the withdrawal of one, No 32677, and in 1960



Below left:
Still with a Class A1 smokebox and wingplates and carrying a Drummond chimney, Lancing Carriage Works Service Stock No DS680 is seen in plain black without BR emblems, at Lancing. This was formerly the ex SE&CR 'Terrier' No 751 (see page 48), and the Wainwright boiler was replaced by an 'A1X'-type boiler in 1937 but for some reason retaining the Class A1 short smokebox. Coal rails were added to the bunker and the wooden brake blocks were at last replaced by the cast iron type. From 1937 until 1963 it was used at Lancing Works, until the arrival of two 'USA' class 0-6-0Ts displaced Nos DS680/1 (see text). This locomotive was subsequently preserved, in its original guise as No 54 *Waddon* (see Appendix 1) and now resides in Canada.
C. P. Boocock

Below:
It is probable that of all the 'Terriers' surviving in BR ownership in the 1950/60 period, no two were exactly alike in all details! For example, No 32636 (originally No 72 *Fenchurch*, the first 'Terrier' sold by the LBSCR in 1898 to the Newhaven Harbour Co), is seen here in a fresh coat of BR lined black at Newhaven shed. Although the boiler and front end arrangement conforms to the Marsh 'A1X'-style rebuild, the coal bunker was never altered and retained the low capacity of Stroudley's original design, without coal rails. It was sold in 1964 to the Bluebell RPS (see Appendix 1).
E. R. Wethersett/Ian Allan Library



an important and prophetic event was the sale of No 32655 in full working order to the Bluebell Railway. In 1963 the class ended its useful days on BR metals, with the closure of the Hayling Island branch; the closure of the West Quay tramway at Newhaven, and the replacement of the two departmental 'Terriers' Nos DS680/1 at Lancing carriage works by 'USA' class 0-6-0Ts. Only three were cut-up by BR, Nos DS681 and 32635/61 the seven remaining being sold as detailed in the case histories that follow.

Class A1/A1X† 'Terriers' sold out of service by the LBSCR/SR/BR for further use, whilst still in running-order. (Excluding Isle of Wight):

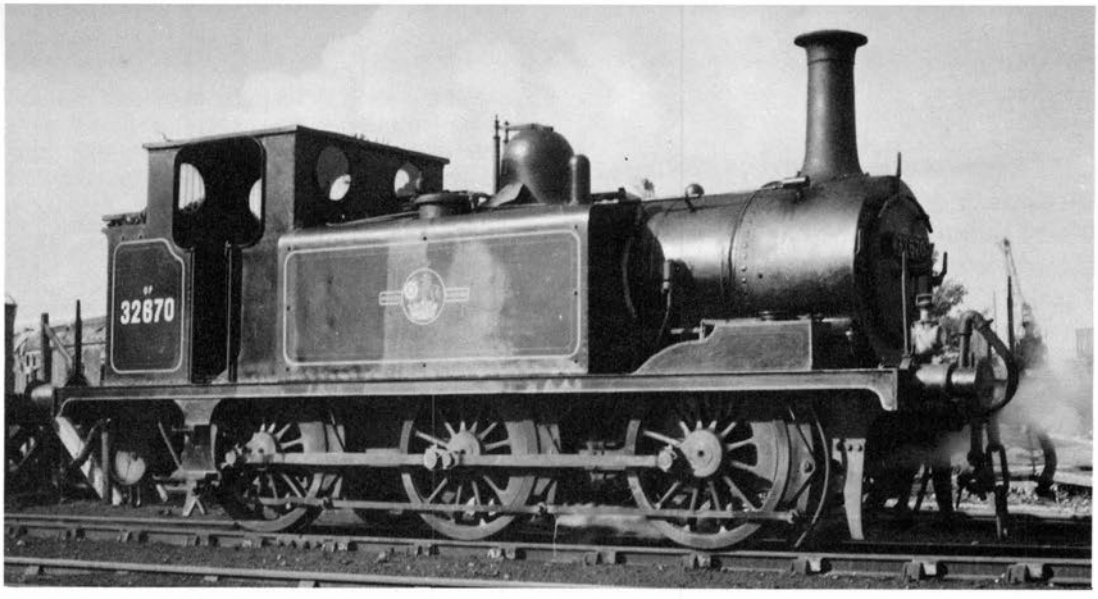
LBSCR No/Name	*Details*
36 *Bramley*	Sold 1902 to Pauling & Co as No 88 for contractors' use during construction of High Wycombe-Marylebone section of Great Central Railway. Scrapped 1909. (Other Pauling locos listed below; same use.)
37 *Southdown*	Sold in 1918 to the Admiralty for use at Inverness. Later at Mine Depot Grangemouth, as No 5. Subsequent fate not known, after 1920.
38 *Millwall*	Sold in 1918 to the Admiralty for use at Invergordon. In surplus store at Dalmuir, Dumbartonshire, 1923 and sold to Shropshire & Montgomeryshire Light Railway in 1923; became No 8 *Dido*. Sold for scrap 1934.
39 *Denmark*	Sold to Pauling & Co as No 87 in 1902; scrapped 1909.
43 *Gipsyhill†*	Sold by SR in 1925 to Weston, Clevedon & Portishead Railway, as No 2 *Portishead*; became GWR No 5 *Portishead* in 1940, when line closed. Taken into BR stock as No 5 in 1948, withdrawn 1950; scrapped 1954.
46 *Newington*	Sold in 1903 to London & South Western Railway who numbered it No 734 for use on Axminster-Lyme Regis branch. Fitted with Drummond boiler in 1912. Loaned in 1913 and sold in 1914 to Freshwater, Yarmouth & Newport Railway. (See previous table, listing Isle of Wight engines.)
49 *Bishopsgate*	Sold to Pauling & Co as No 79 in 1902; believed to have been scrapped by them in 1909.
52 *Surrey*	Sold to Pauling & Co as No 90 in 1902; believed to have been resold, converted as a tram engine to La Plata Tramways, South America in 1909.
53 *Ashtead†*	Rebuilt to 'A1X' in 1912. Renumbered 2653 by the SR who sold it to Weston, Clevedon & Portishead Light Railway in 1937, as No 4; became GWR No 6 in 1940, scrapped 1948.
54 *Waddon†*	Sold to the South Eastern & Chatham Railway as No 751 in 1904 for use on Sheppey Light Railway. SECR Wainwright boiler fitted 1910. Rebuilt to Class A1X by SR in 1932, becoming No 680s departmental shunter at Lancing Carriage works; BR No DS680. It was sold to Montreal for preservation in 1963, (see Appendix 1).

57	*Thames*	Sold to Pauling & Co, as No 64, in 1902; believed to have been resold, converted as a tram engine to La Plata Tramways, South America in 1909.
67	*Brixton*	Sold in 1920 to Messrs Rylan & Smith of Sheffield, who sold it to the Grassmore Collieries, Chesterfield; who named it *Ashgate*. Scrapped in 1934/5.
68	*Clapham*	Sold to the London & South Western Railway in 1903, as No 735. Fitted with Drummond boiler in 1912. Into SR stock as No E735; scrapped 1936.
70	*Poplar†*	Sold in 1901 to the Rother Valley Railway, (later known as the Kent & East Sussex Railway), becoming No 3 *Bodiam*. Rebuilt to Class A1X in 1943. After Nationalisation it was taken into BR stock as No 32670. Preserved by Kent & East Sussex Railway, Rolvenden, (see Appendix 1).
71	*Wapping*	Sold in 1901 to the Rother Valley Railway (K&ESR), becoming No 5 *Rolvenden*. In 1933 it was withdrawn and various parts used to keep No 3 *Bodiam* (above) in service on the K&ESR.
72	*Fenchurch†*	Sold in 1898 to the Newhaven Harbour Co. Rebuilt as Class A1X in 1913. In 1925 the Newhaven Harbour Co was taken-over by the SR who gave it the number B636, later No 2636; finally BR No 32636. Sold in 1964 to the Bluebell Railway Preservation Society for preservation, (see Appendix 1).
73	*Deptford†*	During World War I was on loan to Longmoor Military Railway. Sold to the Edge Hill Light Railway in 1919 as 'No 1'. Stood derelict from 1925, when the line closed, until 1946, when scrapped *in situ*.
74	*Shadwell*	Sold to Edge Hill Light Railway in 1920 as 'No 2'. Stood derelict from 1925 until 1946, when scrapped *in situ*.
79	*Minories*	Sold in 1918 to the Admiralty for use at Invergordon; later noted at Catterick Camp, Yorks in 1919, and Chatham Dockyard in 1920. Scrapped at Chatham in 1933.
81	*Beulah*	Sold in 1918 to the Admiralty for use at Inverness. Resold in 1921 to the Shropshire & Montgomeryshire Railway, as No 7 *Hecate*. Withdrawn in 1930 and slowly dismantled for scrap until 1934.
83	*Earlswood*	Sold in 1918 to the Admiralty for use at Inverness. Resold in 1923 to the Shropshire & Montgomeryshire Railway, as No 9 *Daphne*. During 1930s was kept in working order by using parts from withdrawn Nos 7 and 8 (above). Resold to Southern Railway in 1939, to be used as a source of spares for the SR's own 'Terriers'; finally scrapped 1949.

What a truly remarkable locomotive William Stroudley produced way back in 1872!

The locomotives were built as follows:
Nos 70-75* Brighton 1872
Nos 35-69* Brighton 1874-1880
76-84*

*The locomotives were not delivered in numerical order; see Bradley RCTS history for list.)



First of class withdrawn: Nos (LBSCR) 51/65/6, 2/1901.
Last of class withdrawn: Nos (BR) 32650/62/78, 10/11/1963.
**Examples preserved:* Nos (LBSCR) 82, (BR) 32636/40/6/50/5/62/70/8. DS680.
*See Appendix 1 for further details of the preserved examples.

Above:
Also photographed at Newhaven, in use as a Harbour area shunter Class A1X 'Terrier' No 32670 (previously K&ESR No 3 *Bodiam*, see page 52), still had the distinctive high coal bunker and single coal rail, and retained the sandboxes on the leading splashers. The second version of the BR lion and wheel crest is carried, with lined black 'mixed-traffic' livery. The white numerals are of the 'condensed' style that was specially introduced for the BR diesel shunters; note also the BR power classification 'OP' above the number. Now preserved by the Kent & East Sussex RPS (see appendix 1).
Brian Haresnape

The basic dimensions of the class as first introduced were as follows:

Cylinders:	13 in by 20 in
Coupled wheels:	4 ft 0 in
Wheelbase:	6 ft 0 in + 6 ft 0 in = 12 ft 0 in
Boiler diameter:	3 ft 5⅛ in
Boiler length:	7 ft 10 in
Firebox length:	4 ft 1 in
Heating surfaces:	
Tubes (125 in by 1¾ in):	473 sq ft
Firebox:	55 sq ft
Total:	528 sq ft
Grate area:	10.3 sq ft
Working pressure:	140lb/sq in
Weight in working order:	
Leading coupled wheels:	8T 5C
Centre coupled wheels:	8T 2C
Trailing coupled wheels:	8T 0C
Total:	24T 7C
Fully laden weight:	26T 17C
Tank capacity:	500gal
Bunker capacity:	0T 10C

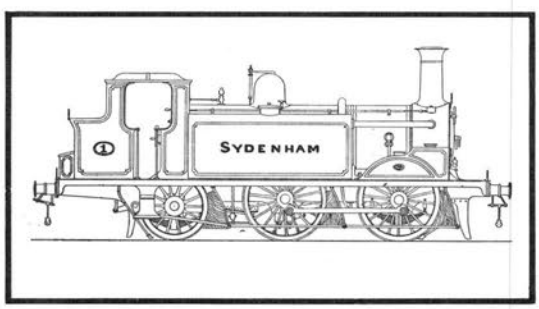
In their final years in BR service, as Class A1X, the survivors had the following dimensions:

Cylinders:	12 in by 20 in Nos 32635/44, 2647, 32650/5/9/61/2/77 13 in by 20 in No 32646 14 in by 20 in Nos 32636/40/70/8
Heating surfaces:	
Tubes (119 in by 1¾ in):	433.2 sq ft
Firebox:	55.6 sq ft
Total:	488.8 sq ft
Grate area:	10 sq ft
Working pressure:	150lb/sq in
Weight in working order:	
Leading coupled wheels:	8T 0C
Centre coupled wheels:	10T 5C
Trailing coupled wheels:	10T 0C
Total:	28T 10C
Empty weight:	23T 10C

SECTION 5

LBSCR Class D, later D1/D1X* SR/Class D1
BR Class 2P
0-4-2T Suburban Tank Engines
Introduced: 1873, 1910.*
Total: 125, 1.*
'D-Tanks'
Note* Rebuilt in 1910 with larger boiler, by D. E. Marsh.

The little 'Terriers' had been successfully designed to solve the problems presented by the poor tracks and frequent stops and starts of the inner-London suburban services. There remained, however, the need to provide a suitable design to replace the varied Craven collection on the more heavily-loaded trains on the longer-distance services to the outer suburbs, where stops were not quite so frequent, and where speeds could certainly be increased between stations, if good acceleration was possible from the engine. A tank engine design was preferable because it avoided the need to turn the engine at the end of a run; (many of the Craven engines were tender engines which required turning and were not really suited to their allotted duties!)

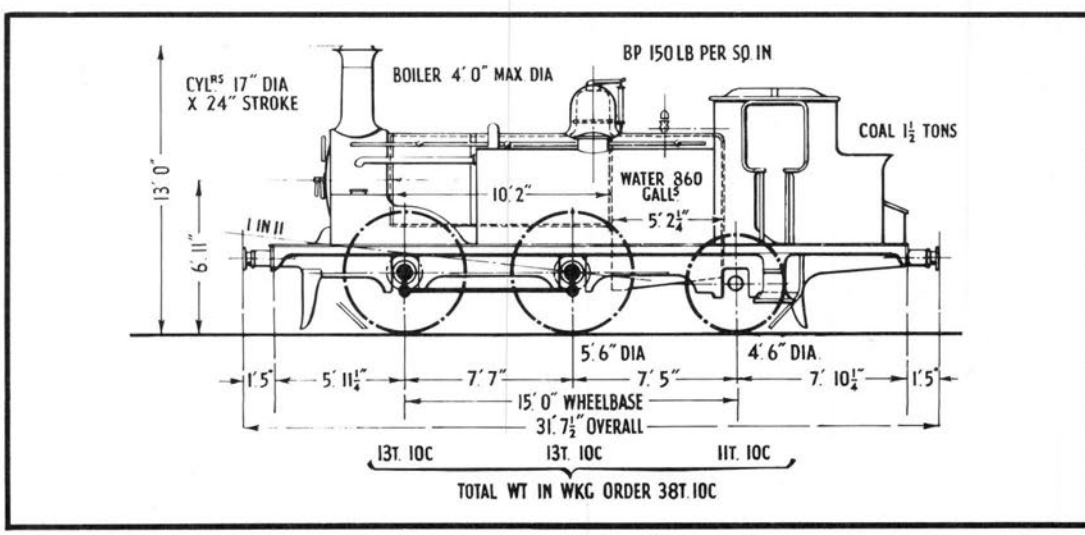


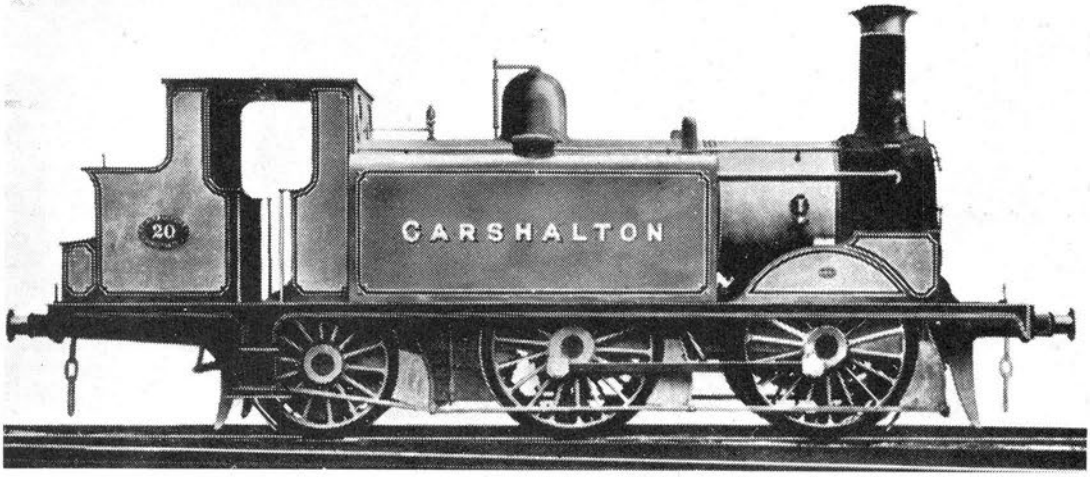
Right:
Class D 0-4-2T No 20 *Carshalton* as delivered from Brighton in July 1875 and pictured here in brand new condition, in matt grey workshop paint lined and lettered for photographic purposes prior to receiving Stroudley's golden ochre livery. No Westinghouse brake fitted, and plain three link couplings; wooden brake blocks. *Ian Allan Library*

Below right:
This photograph of No 3 *Battersea*, taken at Battersea shed shows the engine after the Westinghouse brake had been added by Stroudley, with the pump located on the cabside. The angular treatment of the bunker top-plate at the rear, is well portrayed. Stroudley changed this to a flowing curve on later locomotives; (typical of his attention to small details!) *LPC*

Bottom right:
A lovely study of No 255 *Willingdon*, posed with crew in Brighton shed yard. Built by Neilson & Co, Glasgow in February 1882, the engine has the Westinghouse brake, and is fitted with cast iron brake shoes and screw link couplings. Note the Stroudley practice of *painting* imitation spokes over the balance weights of the coupled wheels. The coupling rods of all engines in Stroudley golden ochre livery, were always painted claret, with just the ends left in polished metal. *LPC*

Left:
The drawing depicts No 1 *Sydenham*, as first delivered to traffic without the Westinghouse brake, and showing the original angular treatment to the bunker top-plate; wooden brake shoes on all wheels.

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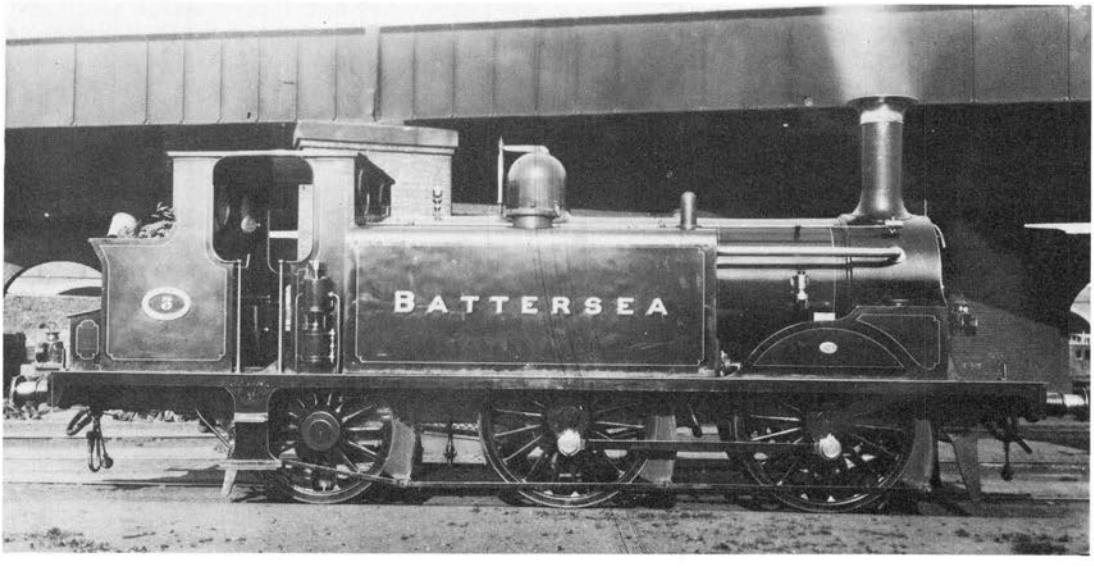
CARSHALTON


BATTERSEA

WILLINGDON

Thus Stroudley produced an 0-4-2T with greater fuel capacity and larger coupled wheels than he had thought necessary for the 0-6-0T 'Terriers'.

To get the good acceleration, without unduly extending the wheelbase and thereby increasing flange wear on the many quite severe curves, he chose to use two 5ft 6in coupled wheels, and a large carrying wheel, on a short wheelbase layout with considerable overhang at the cab and bunker end. In the event, although these attractive engines were primarily conceived for use in the London suburban area, they soon proved to be so useful that they were multiplied in numbers, enough to be found in due course virtually all over the LBSCR system. Despite the need to replenish the water tanks en route (every 30 miles or so), they were even popular on the longer distance secondary passenger and good trains.

On the suburban services for which they were first intended they proved an admirable investment, and became popular with the regular passengers because of their reliability to 'get them to work and back'! There was nothing really extraordinary about their design, but the 'D-tanks', had very robust workmanship and their layout was well-suited to the intensive but short workings of suburban passenger services. When running bunker-first they had an admirable lookout for the enginemen, and the riding of the big trailing wheels was steady enough, (unlike Stroudley's 0-6-0Ts which rode roughly at speed when running bunker-first and which made firing a difficult and risky task!)

Stroudley introduced a wheel and screw reverse on the 'D-tanks' and this assisted the enginemen in gaining rapid acceleration from rest. The first 15 built had both steam and hand brakes working on large wooden brake blocks on all the wheels. As further batches were built, more improvements were made to the design, with better feed pumps, and the Westinghouse brake was fitted, (still acting on wooden brake shoes). It was a 'D-tank' No 16 *Silverdale* that first had the driver's name and mileages run painted in the cab, a feature which Stroudley from then on made a standard practice during his lifetime. By 1879 improved sanding gear was fitted, (and introduced retrospectively to some existing locomotives), and cast iron brake shoes were introduced, starting with No 268 *Baynards* in May 1880. At the same time some slight dimensional changes were made to the leading bufferbeam and guard irons. All the locomotives were built with Stroudley's condensing arrangement, whereby half the exhaust steam was turned back, through external copper pipes, to the water tanks to heat the feed water. This system created the characteristic soft-sounding exhaust beat, which turned into a veritable purring sound when running at speed!

It was logical that the first batches, which went to London area sheds should carry the names of London Boroughs and suburbs, and then, as the class was multiplied and allocated to country districts and the South Coast, the

Below:
An unusual view of No 26 *Hartfield*, which clearly shows the revised, curved, treatment to the bunker top-plate at the rear. Note how the coal has been heaped high, without coal rails (and so liable to spillage), and a typical touch is the driver's bag hanging from a rear lamp iron. The layout of the brakes, with wooden blocks, is well depicted, and the overhang at the rear of the cab, behind the trailing carrying wheels is very apparent from this angle. *LPC*

Above:
A pleasing study of Neilson-built 'D-tank' No 245 *Withdean*, taken at East Croydon station *circa* 1908. Still basically in Stroudley condition and certainly showing no signs of being already over a quarter of a century old! What a beautiful polish had been bestowed upon the golden ochre livery by its proud driver. *E. T. Vyse/J. H. Price collection*

names became those of country villages and rural towns. With the 'D-tanks' it really *was* possible to see a locomotive carrying the name *Dorking*, for example, actually heading a Dorking-bound train. It must have sometimes caused confusion to the layman seeking the destination of the train 'just arriving on Platform 2'! (Porter: "This train is for Horsham, Sir". Old Man: "Oh! But I distinctly saw Effingham written on the side of the engine.")

When still more 'D-tanks' were required in 1881/2 Brighton works was already occupied to capacity, building other Stroudley classes, and the order was therefore put to tender, to outside locomotive builders, with Neilson's of Glasgow winning the order for 34 examples; delivered in 1881/2. By a curious set of circumstances, Neilson's provided a 35th 'D-tank' in 1883. This came about because Stroudley had sent a variety of sample parts to Neilsons, for their pattern-maker, and after the ordered batch was completed these parts were still cluttering-up the floor of the erecting shop. Neilson's suggested that an extra locomotive could be constructed to use up these pieces, and Stroudley duly agreed; the result being No 233 *Handcross* built in 1883. Brighton supplied the paint to Glasgow, and sent full size drawings for all the names, (which proves, incidentally that these were *hand*-painted upon the tanksides), and Bradley records one spelling error: No 236 *Ardingly* which Neilsons delivered as *Ardingley*, and which remained thus for some years! Further batches of 'D-tanks' were built at Brighton in 1884/5, and 1886/7, making a grand total of 125 produced over no less than 14 years.

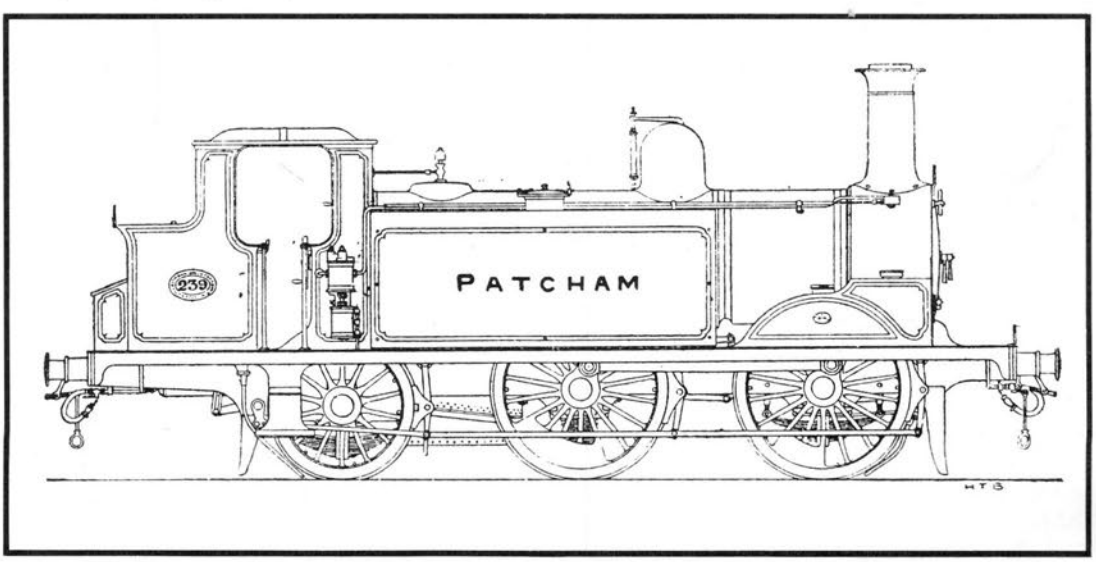
At the time of Stroudley's death, the 'D-tanks' were still fully employed on their intensive suburban duties, but the strain of heavier loads and of age (in the case of the earlier examples of the class), were beginning to show. However, Stroudley did not prepare a replacement design and apparently envisaged building still more of the class; a decision subsequently not adopted by R. J. Billinton, who produced instead his own larger tank-engine designs. By 1892 the original Stroudley boilers were wearing out, and Billinton began replacing them, (the original boilers being repaired and used as a 'float' of spares). The first 10 boilers were built by Kitsons of Leeds, and although retaining the basic dimensions of the existing design, these boilers had the dome, with the safety valves on it, moved forward to the centre of the boiler (middle ring), and there was a raised manhole cover on the firebox top. Later Billinton boilers produced at the turn of the century, had the dome put back in its original place on the back ring and no manhole cover. With these new boilers the feed-heating pipes were usually removed, and the exhaust steam all passed to the atmosphere through the chimney; injectors replaced the feed pumps and new

cylinders were also provided. However, when further new boilers became necessary, and were supplied in the 1903/4 period, by both the Yorkshire Engine Co and Kitsons, the condensing arrangement and feed pumps were retained.

Greater changes befell the 'D-tanks' after D. E. Marsh had taken office at Brighton in 1905. He recognised their general usefulness and popularity, and continued with the policy of reboilering; substituting his own boiler design, however. This had a large closed dome, and modified Ramsbottom safety valves in a casing over the firebox; the shape of both dome and safety valve casing being somewhat modified

Above:
In 1892 R. J. Billinton began reboilering some of the more aged 'D-tanks' and at the same time fitting injectors and cold feed, and removing the condensing pipes. This study of No 20 *Carshalton* (compare with picture of the same loco on page 61), shows the 1892 boiler which had the dome moved forward, and a manhole cover over the firebox. No 20 is still fitted with wooden brake shoes, but has the Westinghouse brake and screw link couplings. *LPC*

Below:
The drawing depicts No 239 *Patcham* as first modified with the 1892 Billinton boiler in 1894. This particular 'D-tank' also received the revised 1902 version as is shown in the next illustration.



in due course. (See illustrations.) If the Stroudley chimney was in good condition, Marsh retained it, but where necessary he replaced it by one of his own castiron design. Marsh boilers were fitted to many locos of the class, from 1906 until early Southern Railway days, undoubtedly giving 'new life' to the 'D-tanks'. However, some were condemned, commencing in 1903 due to frame corrosion, and the poor condition of their cylinders and firebox. Marsh salvaged the coupled wheels, connecting, eccentric and coupling rods, and the reversing links from some of these condemned locos in order to re-use them in the construction of some of his 'I1' class 4-4-2Ts Nos 1-10 in 1907. Other changes made to the 'D-tanks' by Marsh included an increased coal capacity by means of the addition of coal rails to the bunker, adding some two tons of coal (later the coal rails were plated with steel), and the whistle was moved to a position on top of the cab roof.

A more dramatic rebuild by Marsh in 1910 met with only moderate success and it remained the sole example of its kind. Classified 'D1X', it was No 79A (originally No 20 *Carshalton*) and Brighton works fitted it with an enlarged boiler; in the process increasing the weight in working order to 47tons 10cwt. The problem was one of a high centre of gravity, caused by the increased size and raised height of the boiler, (the cab floor, sides and roof had to be raised to give an adequate look-out for the driver), and poor weight distribution, and the rebuild proved to be a rather unsteady rider; although capable enough in all other respects.

An earlier change to the class, in common with all Stroudley's engines, was the livery, which D. E. Marsh did not favour, and after some experiment he produced his own umber brown livery. The first LBSCR locomotive to be painted in umber was 'D-tank' No 361 *Upperton*, in May 1905, and this had lining in orange, black and yellow and still carried its name on the side tanks. A simplified lining-out, and replacement of the names by the initials LB&SCR on the tanksides was subsequently adopted – reducing the cost of painting each locomotive by some 45 per cent. It must remain to this day as a matter of personal taste, whether or not the umber brown was as attractive as Stroudley's golden ochre, but it was *apparently* easier to keep clean, and proved to be extremely hard wearing.

The introduction of the 'motor-trains' in 1905, by Marsh, already referred to in the story of the 'Terriers' (page 48), involved conversion of some 'D-tanks', each to work two trailer cars, with the engine sandwiched in the middle, in the first instance. After some initial troubles the class proved to be very suitable, and conversions continued until 1923, by which time there were 'motor-trains' operating in and around London, as well as in some country districts, and being handled competently by the class. Those of the class not fitted for 'motor-train' working, and still employed on London suburban train duties were beginning to be a liability by the time of the Grouping, and had to be 'thrashed', with consequent heavy fuel consumption, in order to keep time with the heavier loads by then commonplace.

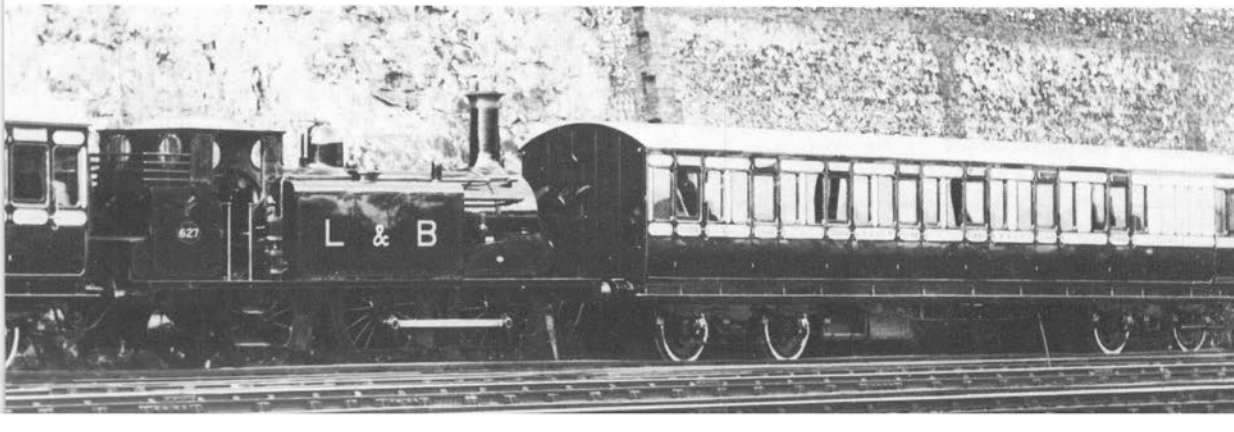
One other variation of the class in LBSCR days, must be mentioned. One which literally 'happened by accident'. No 248 was damaged on the right-hand side in an accident at Streatham Junction in November 1919; a major part of the damage being to the side tank. As a result, Marsh rebuilt the side tanks in a larger capacity, rectangular-shaped form which somewhat altered the appearance, but not greatly their water capacity. It remained a 'one-off' example.

The final years of the LBSCR, and the early SR period witnessed the survivors being more and more relegated to the country branch lines; often working 'motor-trains'. The Southern gave them the Maunsell green passenger loco livery, and some were sent to areas outside their former LBSCR habitat as, in due course, the spread of electrification further reduced their usefulness. A particular case was the Axminster to Lyme Regis branch, where two (Nos 276/633) were sent in 1929, suitably modified to reduce their weight; in particular by a reduction in coal and water capacity. Initial success led to two more being converted and sent (Nos 359/612), but after some further months of intensive usage the local enginemen petitioned for the return of their two Adams exLSWR 4-4-2Ts, which had been displaced, and which took more kindly to the peculiarities of this particularly difficult branch line!

After 1916 boilers were changed about from engine to engine as required, and it could happen that a locomotive reboilered by Marsh once again carried a Stroudley or Billinton boiler – thus there were several permutations of dome, chimney and safety valve arrangements. It was still possible to find some basically in Stroudley condition when the Southern Railway took over the LBSCR locomotive stock in 1923. The late 1930s witnessed a surplus of SR steam, due to the new main line electrification schemes, and it is probable that all the 'D-tanks' would have soon

PATCHAM

UPPERTON


627
L & B

Above:
When D. E. Marsh decided to prolong the life of the 'D1' class 0-4-2Ts by fitting more of them with new boilers, he produced a new boiler design of his own, with a very large closed dome and with modified Ramsbottom safety valves in a plain casing copied from Doncaster GNR practice. The Stroudley chimney was retained if still in good condition, and some had the condensing pipes removed. The whistle was placed high on the cab roof. Illustrated is No 271 which received its new Marsh boiler in December 1910, by which time the size of the dome had been reduced somewhat, and the safety valves were encased in a new flared casing. Cylindrical air reservoir added, below the bunker and attached to the main frames. *LPC*

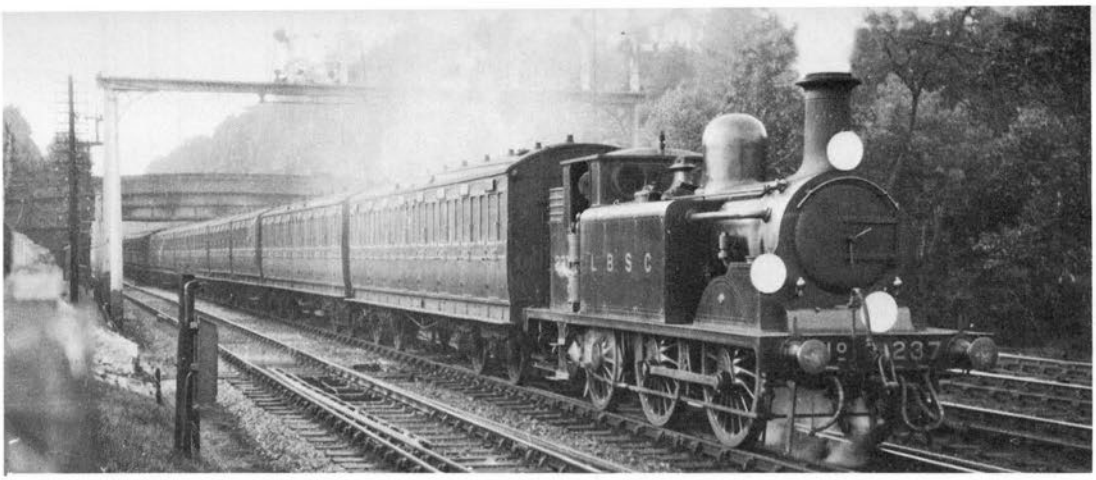
Above left:
Class D1 0-4-2T No 239 *Patcham* as again modified by R. J. Billinton with his second boiler design, cold feed and injectors. It was one of only two of the class he gave a continuous handrail around the smokebox and along the boiler. No condensing pipes fitted. *LPC*

Left:
D. E. Marsh decided to change the livery of the Brighton company's locomotives, and in May 1905 an experimental umber brown was first applied to 'D1' 0-4-2T No 361 *Upperton*, with orange, black and yellow lining-out. The name was in gold leaf, shaded black. This was the only example of a 'D-tank' to retain its name when repainted in the Marsh umber, as it was decided to paint-out the names and substitute the initial letters of the LB&SCR instead.
A. B. MacLeod collection

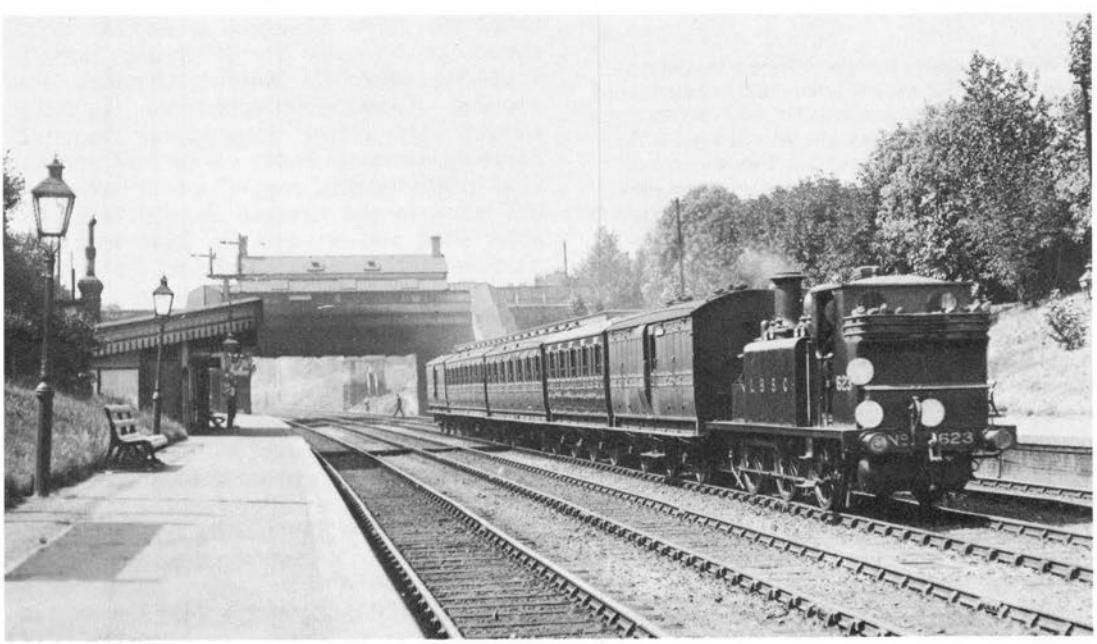
Below left:
A truly bizarre variation of the Marsh livery scheme was tried-out on four 'D-tanks' converted for 'motor-train' working in 1909/10. They were Nos 605/27, 284/90 and the side tanks carried huge initials L&B (for London and Brighton). The colour of the locomotive was the standard Marsh umber brown, with a white cab roof, and they were sandwiched between two driving trailer cars painted in umber brown and cream with white roofs. No 627 is seen here, fresh from the Brighton paintshop in July 1909. The large initials were disliked and were soon painted-out, at the order of the chairman of the company!
Bluebell RPS Archives

gone to the breakers, (some were in store in 1938) had it not been for the outbreak of World War 2. Instead nine were converted as mobile 'fire-fighters' (see illustration), and allocated to sheds when enemy bombers were expected to strike, and seven were sent 'on loan' to the LMSR who were short of light passenger locomotives. These latter were Nos 2232/40/86, 2358, 2605/27/99 and went to Scotland and the Liverpool area in 1941, five remaining on the LMSR, (of which four worked) until the summer of 1944) the other two (Nos 2240/86) being taken over by the War Department in 1942. Of the five on the LMSR one was actually condemned by that railway in 1943, due to a defective firebox; this was No 2627. Some stored examples of the class were turned into air raid shelters at Bricklayers Arms shed, surrounded by concrete blocks and sandbags!

The end of the war found the class reduced to 26 examples, of which a number were stored or in use as stationary boilers, supplying steam for various purposes. The abortive Government-sponsored oil-firing scheme for steam locomotives required pumping locomotives for the oil fuel, and No 2244 (a 'fire-fighting' engine), was modified for this purpose and became Service Stock No 700s; then another one No 2284 was also modified and became 'Oil Pump No 2; then 701s. They were used at Eastleigh, Fratton, Exmouth Junction and Nine Elms, before the scheme was abandoned. A few gallant examples of the class still soldiered on with normal train workings, but by Nationalisation they were few and far between and the end of the class on BR came in 1950, with the withdrawal of Horsham-based No 2252 (complete with a Drummond chimney). However, in 1951 there were two survivors which were not in capital stock, and which were broken-up that year. These were oil-pumping conversion No 701s which had been lying derelict at Nine Elms shed, and No


L B S C
237

L B & S C R
A
79


L B S C
623

Left:
If the original Stroudley copper-capped chimney needed replacement, D. E. Marsh used his own cast iron design, of somewhat less graceful proportions. This picture of Class D1 0-4-2T No 237 shows the Marsh chimney, and the *first* version of the Marsh dome, which was extremely large; although the safety valve casing is of the later flared pattern. The lengthy train being worked by the gallant little engine cannot go unremarked!
Ian Allan Library/Madgwick collection

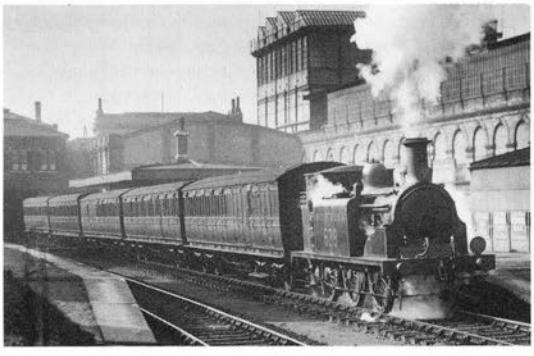
Below left:
Class D1X 0-4-2T No 79A, a solitary rebuild by D. E. Marsh in 1910 with a larger, high-pitched boiler a circular smokebox and saddle, a small dome, a shorter chimney and raised cab roof. This engine was originally No 20 *Carshalton*, (already illustrated). Four coal rails were added to the bunker to increase the capacity, but the water capacity was unaltered. No more rebuilds of this type were undertaken, as the engine proved unpopular, because of its poor riding at even moderately high speed – a question of weight distribution and high centre of gravity. Nevertheless it continued in service until 1933 in this state; being condemned that year due to the state of the special boiler.
LPC

Bottom left:
A very characteristic view of a 'D-tank' on a London area suburban working, bustling through Honor Oak Park station with a mixed formation of six-wheeled, and bogie stock. When working bunker-first, the plated coal rails that were added by Marsh somewhat reduced the excellent visibility from the footplate; a feature that Stroudley had originally so carefully designed. The locomotive is No 623. One of the better features of the Marsh livery were the large bufferbeam numerals, which made identification so much easier! *Ian Allan Library/Bucknall collection*

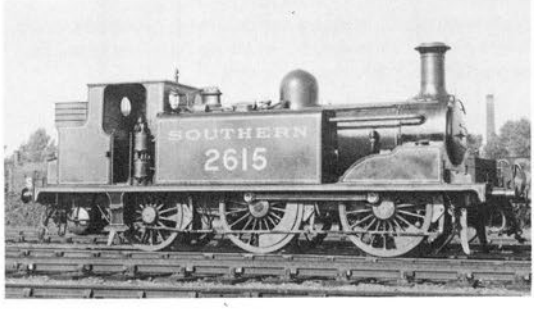
Above:
With the summer-blessed slopes of Box Hill almost lost in a heat haze in the background, Class D1 0-4-2T No B248 stands at Dorking North, in SR Maunsell green livery; sometime in the late 1920s. This was the engine damaged in an accident at Streatham Junction in 1919, and as a result new side tanks were required. A rectangular-topped pair were made specially, giving it a unique appearance for the rest of its days. It carries a Marsh chimney and boiler, and the condensing pipes are still in situ. *Bluebell RPS Archives*

Below:
This picture, and the one that follows it, serves very well to illustrate how diversified the condition of the surviving 'D-tanks' became during their SR ownership. Seen here is No B612 photographed sometime prior to June 1929, with original Stroudley chimney; Marsh boiler, dome and Ramsbottom safety valves; whistle on cab roof; no condensing pipes; injectors and cold feed; dual-brake fitted (Westinghouse and vacuum), and three coal rails added to the bunker. *P. F. Winding collection*

Left:
No B612 again! But how different she looks, seen at Brighton on 30 June 1929 fresh from overhaul at the works. Now the engine carries a Marsh chimney and an 1892-style Billinton boiler with forward-sited dome and safety valves. The coal bunker has been dramatically reduced in size and capacity in preparation for use on the Axminster to Lyme Regis branch, with its severely restricted axle-loading. Vacuum braked only for train working, and with a steam heating hose for the winter months, No B612 makes a presentable picture in a fresh coat of Maunsell green with black and white lining. Note the oval numberplate located between the two rear cab windows. *H. C. Casserley*



Centre left:
The last regular passenger train duty for the 'D-tanks' in the London area was the shuttle service between Clapham Junction and Kensington Addison Road. Pictured here at West Brompton on April 21 1932, Class D1 0-4-2T No B629 restarts a collection of exLBSCR (leading three) and ex LSWR (rear two) carriages; heading for Clapham Junction. The District Line station is in the righthand background.
O. J. Morris/Ian Allan Library



Below left:
A beautifully-lit study of a 'motor-train'-fitted 'D-tank' in the typical condition they were to be seen in during the 1930s; the happy years in which they still warranted full SR passenger green livery and lining-out. The large numerals and expanded lettering of the Maunsell livery sat very neatly on the side tanks. No 2615 shows the plated coal rails on the bunker top, and has typical Marsh boiler mountings and trimmings. It still carries the condensing pipes from smokebox to tank.
J.G. Sturt collection

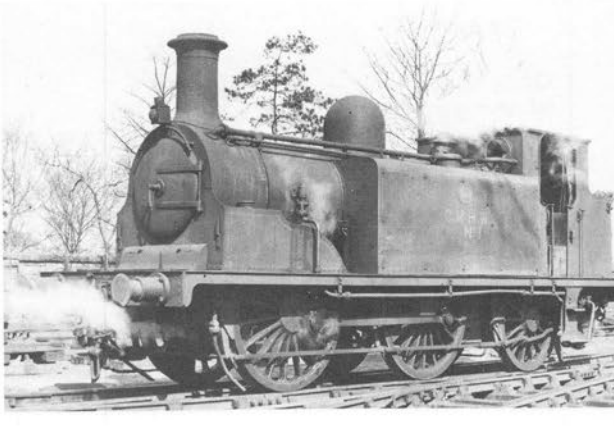
Below:
The increase in coal capacity made possible by the addition of the coal rails, (in this case plated), is well demonstrated in this bunker end view of No 2356, taken at Bognor shed in 1935. The engine is fitted-out for 'motor-train' work and has the vacuum brake as well as the Westinghouse air brake, for train working. A nice touch was the number painted on the rear of the bunker, in chrome yellow numerals shaded black upon the Maunsell green. *Photomatic*

Above:
A few 'D-tanks' received the Drummond-style chimney in SR days, which did not enhance their appearance. No 2252 sports one in this July 1941 official wartime photograph, taken when it had been converted to a fire-fighting locomotive and fitted with pumps at the rear of the bunker, (which incidentally meant removing the traditional Stroudley toolbox). In unlined Maunsell green, with Bulleid-style lettering on the tankside, No 2252 carries the water hoses around the front of the engine, and has a pleated oilcloth blackout curtain in the cab entrance. Ashford-pattern injectors replaced the feed pumps and condensing gear. This particular locomotive was at Norwood Junction, and later Dover, but it is not recorded as having fought any fires caused by enemy action. After the war No 2252 was converted back to a normal Class D1 0-4-2T and as such had the dubious distinction of being the last of the class to remain in BR Southern Region Service; being withdrawn and scrapped in 1950. *BR*

Above right:
Old age was undeniably beginning to show upon No 2286 when photographed at Nine Elms in June 1946. Having started life in an aura of Victorian style and elegance, it spent its last days in the gloomy postwar depression, when engine cleaners were few and far between, and the engine was in the final plain black livery carried by the survivors. An interesting detail change is the addition of a footstep to the leading end, (a feature also carried by No 2359). This particular locomotive had spent most of the war years in strange territory, at first on loan to the LMSR in the Liverpool area, and then purloined by the War Department in 1942 for use on the Melbourne and Longmoor Military Railways. After being returned to the SR, it was finally withdrawn in July 1948. *H. C. Casserley*

Right:
County Mental Hospital Whittingham No 1 was perhaps a less romantic name than Stroudley would have favoured! Purchased by the Lancashire County Council in 1948, it was formerly No 2357, and was in fact the last Class D1 0-4-2T to remain in active service, working on the Whittingham Light Railway (Preston) until it too finally wore out, and was scrapped without ceremony.
Ian Allan Library/Madgwick collection

2359 which had been used as a stationary boiler at Dover. The *last* surviving 'D-tank' was in fact in far away Lancashire, and in use by the Lancashire County Council, who had purchased No 2357 in 1948. After repairs by the SR it became *County Mental Hospital Whittingham No 1*, working on the Whittingham Light Railway (Preston) until finally life-expired. What a great pity that private railway



locomotive preservation had not yet become an established practice, and this last example of Stroudley's famous 'D-tanks' escaped attention, and was quietly scrapped.

The locomotives were built as follows:

Nos 1-6	Brighton	1873/4
Nos 7-15	Brighton	1874/5
Nos 16-24	Brighton	1875
Nos 25-36	Brighton	1876
Nos 292-297	Brighton	1877
Nos 268-291	Brighton	1879/80
Nos 234-267	Neilson & Co	1881/2
No 233	Neilson & Co	1883
Nos 221-232	Brighton	1884/5
Nos 351-362	Brighton	1886/7

It should be noted that Stroudley did not deliver his locomotives to traffic in strict numerical order; the RCTS history gives actual dates for each loco and is recommended for readers in search of greater detail.

First of class withdrawn: No 3 12/1903
Last of class withdrawn: Nos 2252 9/1950; 2359 7/1951, and No 701s 12/1951.
None preserved

The basic dimensions of the class, as first introduced, were as follows:

Cylinders:	17 in by 24 in
Coupled wheels:	5 ft 6 in
Trailing:	4 ft 6 in
Wheelbase:	7 ft 7 in + 7 ft 5 in = 15 ft 0 in
Boiler diameter:	4 ft 0 in
Boiler length:	10 ft 2 in
Boiler pitch:	6 ft 11 in
Firebox length:	5 ft 2¼ in
Heating surfaces:	
Tubes (175 by 1¾ in):	845 sq ft
Firebox:	88 sq ft
Total:	933 sq ft
Grate area:	15¼ sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Weight in working order:	
Leading coupled wheels:	13T 10c
Trailing coupled wheels:	13T 10c
Trailing wheels:	11T 10c
Total:	38T 10c
Water capacity:	860gal
Coal capacity:	1½ tons

The dimensions of the Marsh boilered version, as first introduced, were:

Boiler diameter:	3 ft 11 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 2¼ in
Tubes:	180 by 1¾ in
Heating surfaces:	
Tubes:	864 sq ft
Firebox:	82 sq ft
Total:	946 sq ft
Grate area:	15 sq ft
Working pressure:	170lb/sq in
Weight in working order:	
Leading coupled wheels:	13T 0c
Trailing coupled wheels:	15T 7c
Trailing wheels:	15T 3c
Total:	43T 10c

The dimensions of No 79A, rebuilt by Marsh with larger boiler, were:

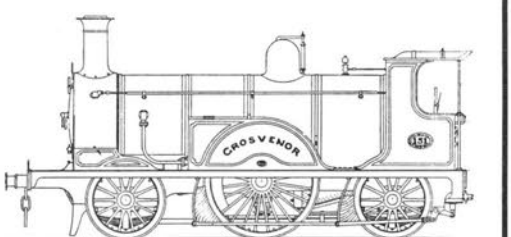
Boiler diameter:	4 ft 6 in
Boiler length:	10 ft 7 in
Boiler pitch:	7 ft 9 in
Tubes:	200 by 1¾ in
Heating surfaces:	
Tubes:	963½ sq ft
Firebox:	90 sq ft
Total:	1,053½ sq ft
Working pressure:	170lb/sq in
Grate area:	15.6 sq ft
Weight in working order:	
Leading coupled wheels:	13T 14c
Trailing coupled wheels:	16T 0c
Trailing wheels:	15T 4c
Total:	44T 18c
Empty weight:	35T 18c

SECTION 6

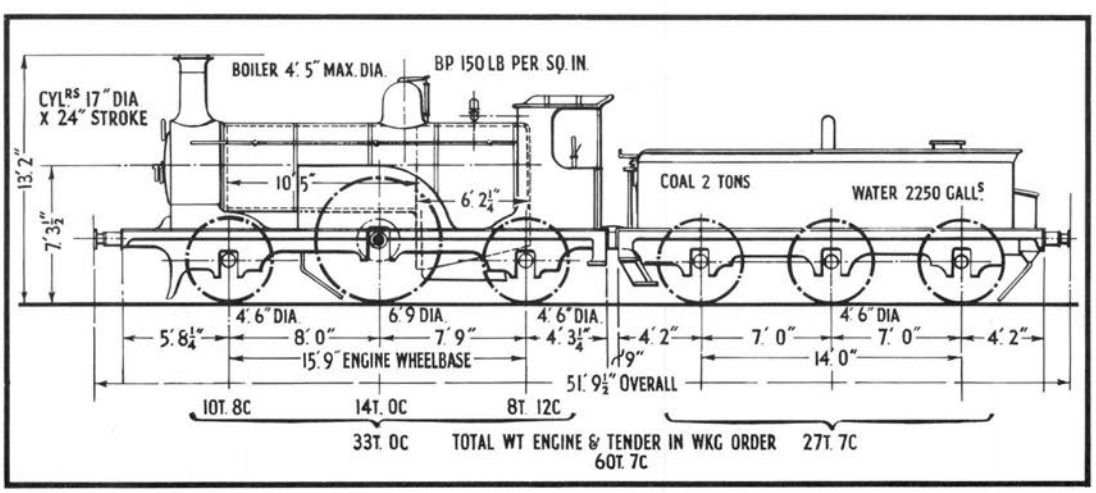
LBSCR Class B, later Class G
2-2-2 Express Passenger Engine
Introduced: 1874
Total: 1
Grosvenor

This extremely attractive locomotive started life as a solitary prototype, but was later on grouped together with Class G. In fact, both Class B and Class F (see Section 8) each consisted of only one locomotive, and these may be regarded as the experimental prototypes, or forerunners, of the 24 locomotives of Class G. The first to appear, was this Class B 2-2-2 No 151 *Grosvenor* and it was in many respects the most majestic of them all, being at the time of building, one of the largest 'Singles' in the country, and very fine to behold. The 6ft 9in driving wheels were the largest ever used by Stroudley, while the boiler and firebox were of very ample proportions for a 'Single' and it was clear that Stroudley envisaged a locomotive capable of hard work on the crack LBSCR express trains of the time. When first built it was fitted with an old Craven tender, but in May 1875 a new outside-framed tender was fitted, and then five years later another new, inside-framed, tender replaced it. (The outside framed tender was then attached to a Class C1 0-6-0 good engine.) This final tender design, of standard Stroudley design emphasised still more the generous proportions of the locomotive.

When new a powerful steam brake for the loco was fitted, and most unusually also a hand brake; plus the usual tender hand brake. The brake shoes were wooden, and acted upon the front of the driving and trailing wheels. The steam brake was said to be very 'fierce' in operation, and not liked by the enginemen. For train braking, after entry into service, *Grosvenor* was experimentally fitted with a Westinghouse vacuum brake, and was sent to Newark for brake trials against other types of brake fitted to locomotives and trains from the Midland Railway (who hosted the trials) the LNWR, GNR, NER and the Caledonian. Unhappily the vacuum-brake on the Stroudley locomotive did not perform too well, and as a result of these trials Stroudley was convinced that the Westinghouse air brake (which the Midland had demonstrated) was a better proposition. The LBSCR directors wisely accepted his judgement, and it was not long before the characteristic sound of the Westinghouse pump became an integral part of the 'Brighton' scene.

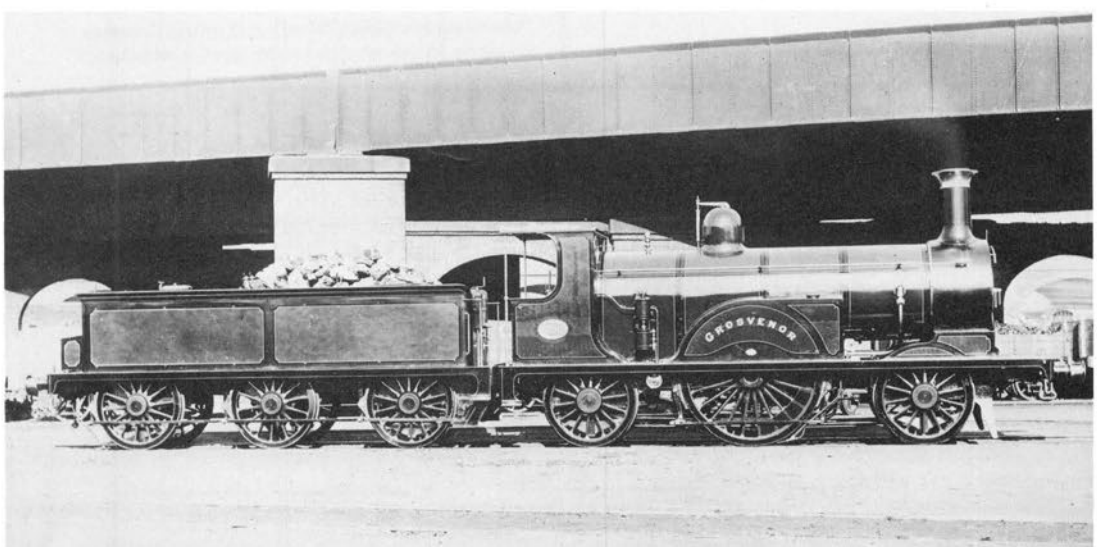


Left:
Ths drawing shows No 151 *Grosvenor*, Stroudley's unique 6ft 9in single-driving wheel express passenger engine, as first fitted with two large wooden brake shoes working on the driving and trailing wheels and a plain three link coupling. (A Craven style tender was first attached.)



Above:
By the time this official photograph was taken, (complete with William Stroudley's signature), the original Craven tender had been replaced by one of the outside framed, underhung-springing Stroudley type, and the locomotive was fitted with the Westinghouse brake, with the pump on the firebox side, but is still fitted with wooden brake blocks, and a plain three link front coupling. Below the running plate at the rear of the big driving wheel splasher can be seen the belt and pulley arrangement of Stroudley's patent speed recorder. *O. J. Morris/Ian Allan Library*

Below:
When Stroudley produced his inside framed tender design, with wheels the same diameter of 4ft 6in, as the locomotive carrying wheels, he replaced the existing tender on *Grosvenor* with a new one, and thereby completed the impression of a 'big' engine – which it certainly was for a 'Single'. Renumbered No 326, *Grosvenor* is seen here posed for the camera at Battersea shed, with clasp-type cast iron brake shoes (only two, both acting on the driving wheel), instead of the wooden type. *LPC*



No 151 *Grosvenor* (later renumbered 326) was a very popular locomotive, and it had the honour of working the first through train from London to Portsmouth on 13 August 1875; the train being a Royal special conveying the then Prince and Princess of Wales (afterwards King Edward VII and Queen Alexandra) to a naval event. In due course the brakes on the locomotive were changed to castiron shoes, on the driving wheels only, but one wonders how the enginemen fared when working such a Royal Special whilst the engine was still fitted with the original poor layout! The average speed on the journey was 48mph.

The locomotive received a new firebox and cylinders, but retained its original boiler for its entire life, and was never rebuilt. It ran about 1,048,000 miles in top link service before being withdrawn in 1907, by which time the use of heavy bogie carriages was telling upon the 2-2-2 wheel arrangement. It was reported to have been sold to Italy in August 1907, and was scrapped there for its metal value. Unfortunately a rumour got around that it was operating on the Italian State Railways, and that it was destroyed in the great earthquake at Messina in December 1908 – a nice example of wishful thinking!

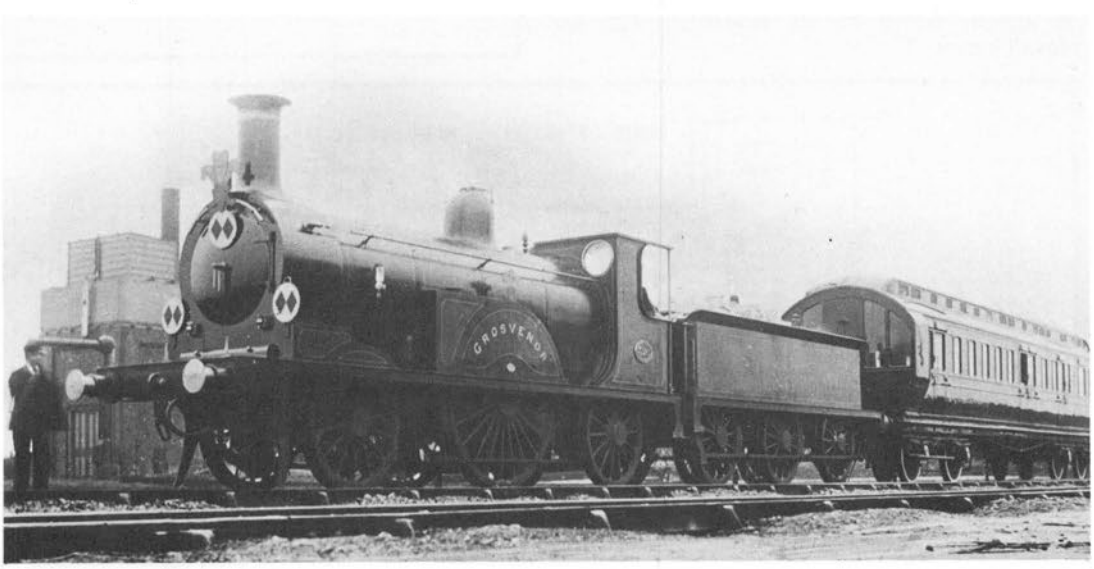
The locomotive was built as follows:
No 151 Brighton 1874

Withdrawn: 5/1907
Not preserved

The basic dimensions of the locomotive as first introduced were as follows:

Cylinders:	17 in by 24 in
Leading and trailing wheels:	4 ft 6 in
Driving wheels:	6 ft 9 in
Wheelbase:	8 ft 0 in + 7 ft 9 in = 15 ft 9 in
Boiler diameter:	4 ft 5 in
Boiler length:	10 ft 5 in
Boiler pitch:	7 ft 3½ in
Firebox length:	6 ft 2¼ in
Heating surfaces:	
Tubes (220 by 1¾ in and 2 by 1½ in)	1022 sq ft
Firebox:	110 sq ft
Total:	1132 sq ft
Grate area:	19 sq ft
Working pressure:	140lb/sq in (later 150lb)
Weight in working order:	
Leading wheels:	10T 8C
Driving wheels:	14T 0C
Trailing wheels:	8T 12C
Engine total:	33T 0C
Tender:	27T 7C
Engine and Tender	60T 7C

Below:
With whitewashed coal in the tender, and carrying a special headcode and 'Prince of Wales feathers', No 326 *Grosvenor* stands attached to one of the Royal Train carriages, in 1901.
Ian Allan Library



LBSCR Class E, later Class E1/E1X* SR/BR Class E1, E1R†
0-6-0T Local Goods and Shunting Engines

Introduced: 1874, 1911*, 1927†
Total: 78,1,* 10†
'E–Tanks'

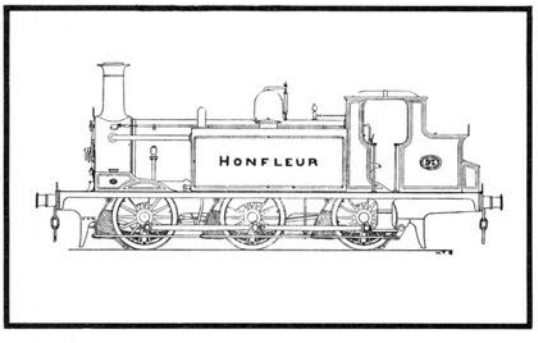
* Rebuilt with large boiler by D. E. Marsh in 1911, restored to 'E1' type in 1930.
† Rebuilt as 0-6-2T by SR in 1927-1929 for use in the West Country districts.

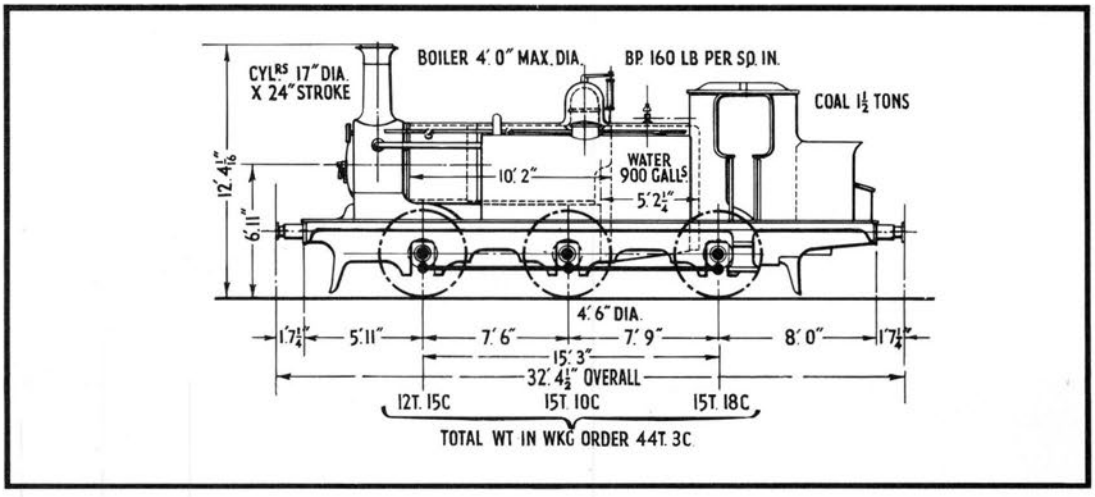
The concept of a standard local goods and shunting tank locomotive was an essential part of Stroudley's avowed policy of replacing the various types of locomotive then in use. (Many of them were unsuitable locos simply 'purloined' by the local shed foremen to engage in a spell of shunting whilst in his particular territory.) A dedicated design, for use throughout the system, was long overdue, and with characteristic pursuit of his ideals, Stroudley soon produced a straightforward 0-6-0 tank locomotive, and ordered six to be built at Brighton in 1874/5. His aim was to have a simple design, with similarity to his 'D-tanks' for the boiler, firebox, cylinders and motion. All the artistic touches associated with his name were again present, with the typical cab, bunker and toolbox, chimney, and other personalised details. The livery was the goods engine dark olive green with black lining bands, but unlike his 0-6-0 goods tender locomotives he chose to give the tank examples names as well as numbers; the first to appear being No 97 *Honfleur*, with the classification 'E'.

Typical Stroudley features were the crosshead feed pumps and condensing gear, and the design of the side tanks with their rounded tops. He chose to provide hand and steam operated brakes, acting upon large wooden blocks, on the leading edge of each wheel. It is recorded that the steam brake was too fierce for many driver's liking, and was kept for emergencies, with the slower hand-braking normally used. (This dislike also applied to other Stroudley types fitted with the steam brake on the locomotive.)

The list of foreign names chosen by Stroudley, and steadily added to as more and more were built (see Appendix 2) led to some confusions of spelling, and Bradley records typical errors in his RCTS history. For example, No 96 *Salzberg* should have been *Salzburg*, and No 111 was even further confused, with the correct spelling *Montpellier* used in the repair register, but *Montpelier* on the actual locomotive and – worse still! – *Montarlier* in the boiler list!

The class seems to have been well received, and to have performed its duties perfectly well, until a need arose to use some temporarily as suburban passenger engines in the London





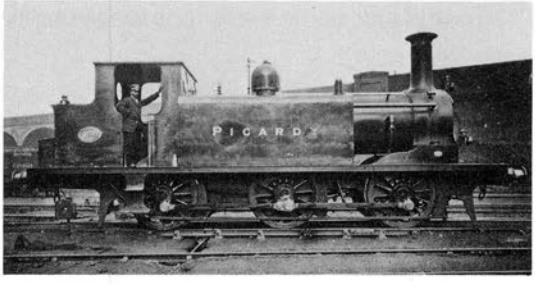
Below left:
The drawing shows No 97 *Honfleur* in original Stroudley condition with wooden brake blocks on each wheel and no Westinghouse brake for train working. Plain three link couplings and lever-operated reverse. They had all the typical Stroudley 'standard' features, including feed pumps and condensing pipes, when new.

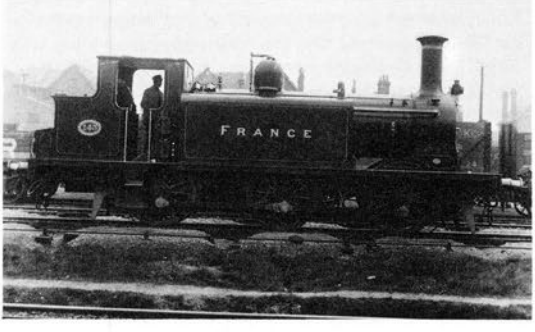
Below right:
'E-tank' No 133 *Picardy* built in 1878, and seen in standard dark olive green goods engine livery, with black lining bands. Photographed at Battersea, in Stroudley's original state, with no Westinghouse brake and with wooden brake blocks. Of interest is that this engine had a Negro fireman – quite a novelty in Victorian railway service! *LPC*

Centre right:
An acute shortage of passenger tanks for use in the London suburban area, as a result of increased traffic, arose in 1880. The 'E-tanks' had been specifically designed for goods duties, but as a temporary measure, Stroudley gave some the Westinghouse brake and painted them in the golden ochre passenger livery. No 145 *France* shows these alterations. The 'E-tanks' were not popular on passenger work, due to rough-riding which even transmitted itself *via* the drawbar to the passengers – who complained! Cast iron brake shoes were fitted to some and the wheel balancing received special attention. *LPC*

Below:
What a delightful photograph this is, with a typical Stroudley-designed water column in the foreground, complete with a new wooden butt. The angle chosen by the photographer is fortunate as it gives us a very clear detail of the bunker end of an 'E-tank'; complete with typical toolbox. The curve to the bunker top-plate at the rear was a modification soon made by Stroudley, (as in the case of the 'D-tanks'), to replace the original angular treatment. No 135 *Foligno* displays the goods engine livery to perfection, and carries an 1892-style Billinton replacement boiler, with the dome moved forward.
Bluebell RPS Archives

area, in 1880. Stroudley gave Nos 97, 101/3/17/8/9/23/8/9 the Westinghouse brake and repainted them in passenger livery, to be followed by Nos 85-96, 145-156 similarly altered when new, and fitted with cast iron brake shoes instead of the wooden type. This was a quick solution to the expanding traffic, and consequent shortage of suitable power. Unfortunately the goods locomotives did not take kindly to their new role, and despite better wheel balancing and the fitting of Krupps long-life tyres to the leading wheels; the 'E-tanks' rode badly at passenger train speeds. The passengers received enough shocks, transmitted through buffers and drawgear, to complain of discomfort and the enginemen





themselves found it difficult to keep to their feet, and to fire while on the move! As soon as more 'D-tanks' became available the 'E's' were thankfully returned to goods working, keeping, however, their passenger livery for quite a time, in some cases. When the Westinghouse brake was added to further examples of the class, for goods working, the standard dark olive green livery had a fine red line added to each side of the broad black lining bands; the repainted erstwhile 'passenger engines' also receiving this style when restored to the olive green.

When Stroudley died in France in 1889, there was some further 'E-tanks' on the Brighton order book. His successor, R. J. Billinton agreed to their construction, but not before he had introduced some alterations to the design; which somewhat affected their appearance. The general dimensions remained the same, but the boilers were to a new design by Billinton, and the wheels were of cast steel. The chimney (of Derby-inspired shape), the splashers and sandboxes were made of cast iron. Although Stroudley's distinctive cab roof was retained, (also his bunker and toolbox, and side tank arrangements), there was now a sliding ventilator in the cab roof, and the cab windows were hinged to open. The boiler had the combined dome and safety valves moved forward, and a manhole cover, with the whistle placed upon it, was sited on the firebox top. The engines (Nos 159-164, built in 1891 at Brighton), had no condensing arrangement and were fitted with Gresham & Craven combination injectors. The Westinghouse brake was fitted, and the sanding was steam operated. Around 1899-1904 the original Billinton chimneys were replaced by the Stroudley copper-capped type as they wore out; this was as a matter of expediency.

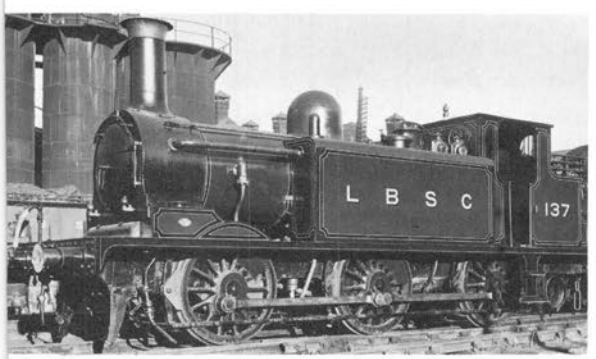
Stroudley's locomotives were very ruggedly-built, especially the frames, and it was the boiler and firebox that usually dictated the need for a major repair. The allotted life-span of the boilers (which in Stroudley's day did not as a rule change around from engine to engine, as was commonplace in later times), led to Billinton ordering some replacement boilers to keep otherwise healthy Classes D and E specimens in service, and to provide some spare boilers. With these replacement boilers, the locomotives that carried them had the condensing gear removed, and were fitted with new cylinders, and injectors of the Gresham & Craven type instead of feed pumps. Further new boilers (needed for the 'E' and 'D-tanks',) had the dome moved back, and no manhole cover on the firebox. A final batch

Below:
After the death of Stroudley, his successor, R. J. Billinton built six more Class E1 0-6-0Ts, slightly altered in appearance but of the same basic dimensions; the most noticeable change being in the design of the boiler and smokebox which was to Billinton's own design. The wheels were of cast steel and had crescent-shaped balance weights, and steam-operated sanding gear was fitted, with the sand boxes located below the footplating, and directed to the centre driving wheel; also the Westinghouse air brake was fitted. In goods engine green livery, but the black lining bands had a very fine red line each side, to denote that the locomotives were Westinghouse brake-fitted for train working. No 163 *Southwick*, photographed at New Cross Gate shows the typical condition of a Stroudley-cum-Billinton 'E-tank' as first built. The dome was moved well forward, and a manhole cover was over the firebox top, with the whistle mounted upon it. Billinton's chimney was a Derby-inspired cast iron tapered design and there was a changed arrangement for the smokebox and leading splasher. Injectors were used in place of feed pumps and there was no condensing arrangement. *LPC*

of boilers ordered by R. J. Billinton, and of steel construction, retained however the feed pumps and condensing gear, and D. E. Marsh kept to this latter practice when providing new boilers of his own design.

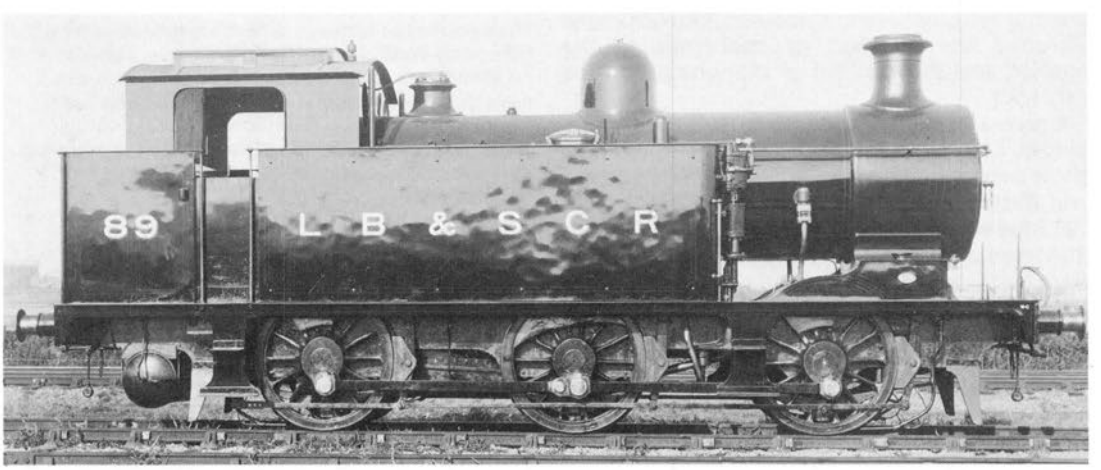
In fact, D. E. Marsh was very quick to produce his version of the 'E tank' boiler, (presumably because sufficient Stroudley examples were wearing out,) and commencing in 1906 selected locomotives began to receive them. His design changed the appearance of the Stroudley locomotives more drastically, and could perhaps be said to have given them a more 'modern' look. Marsh used a plain

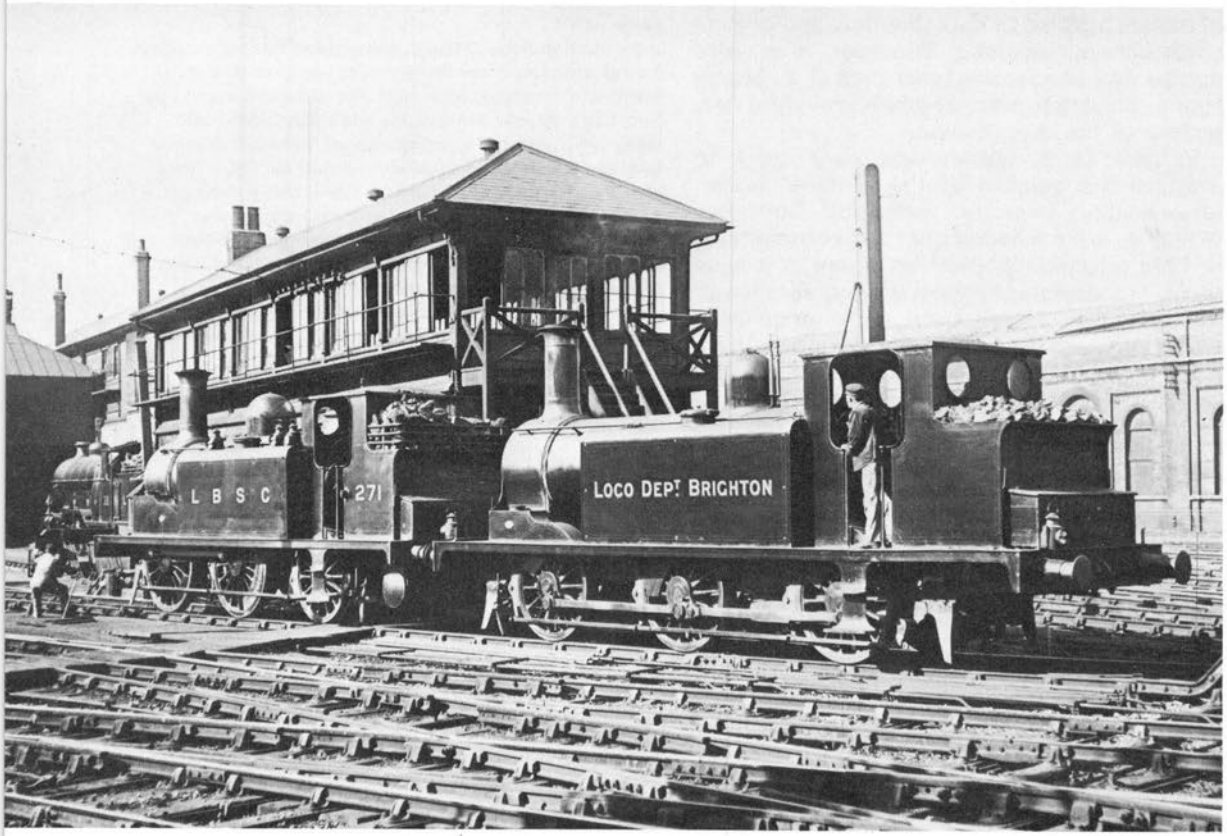
Below left:
In common with the 'D-tanks', many of the 'E-tanks' received the more modern boiler replacement, designed by D. E. Marsh and introduced from 1906. The first examples as seen here, had a very tall dome casing and a plain GNR-type safety valve casing; the copper-capped Stroudley chimney was retained whenever in good condition. No 129, in Marsh black with red lining goods engine livery, with polished condensing pipes, makes a pleasing picture soon after receiving the Marsh boiler. Note also the highly polished whistle in its new position on the cab roof. No 129 still has the wooden brake blocks, but is fitted with the Westinghouse brake. Name removed (formerly *Alencon*) and initials LB&SCR in gold, shaded red on the tanksides.
Ian Allan Library/Madgwick collection



Centre left:
'E-tank' No 137 (formerly *Dijon*) shows the later type of Marsh replacement boiler, with a lower dome and a flared safety valve casing. Although the Stroudley chimney is still carried it is noticeable that the copper has not been polished recently. The Marsh umber brown livery is carried, with a white cab roof; no numberplates carried and initial letters of the company simplified to LBSC and larger than previously applied. Cast iron brake blocks, and coal rails added to bunker; feed pumps and condensing retained.
LPC

Below:
In June 1911 'E-tank' No 89 was completely rebuilt by D. E. Marsh with a new boiler, new square-topped side tanks, new bunker and cab. The wheels, frames, cylinders and motion were not touched. The new boiler was of the same type as applied six months earlier to the Class D1X rebuild (see page 66), and was high-pitched and resting upon a smokebox saddle. For some reason the Stroudley leading splashers and sandboxes were retained, although the sanding was now operated by steam. The cab roof had a clerestory with ventilators, and a very handsome engine resulted with well proportioned chimney, dome and safety valve casing, all of Marsh design. Finished in black livery, with red lining No 89 was classified 'E1X'. It remained the sole example and was rebuilt to Class E1 condition by the SR in 1930.
LPC





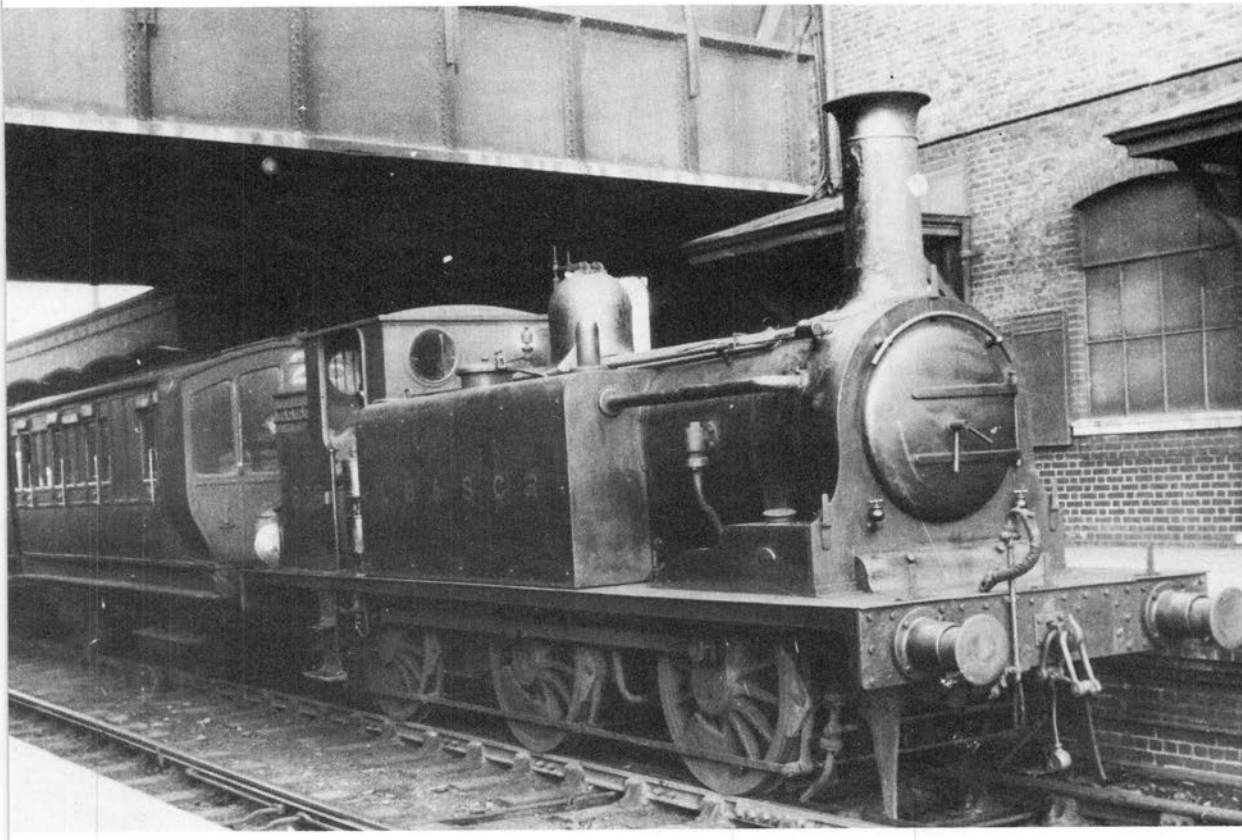
dome, and put Ramsbottom-type safety valves over the firebox, in a casing. This followed the practice of H. A. Ivatt at Doncaster on the GNR, from whence came D. E. Marsh. In due course he modified the shape of the dome and the safety valve casing, and it was then sufficiently different to become his *own* design! Perhaps the biggest change made – from the railway enthusiasts' viewpoint – was the change of livery to black with red lining for the 'E-tanks', and the removal of their names. Other changes included the addition of coal rails to the bunker, and the resiting of the whistle on the cab roof.

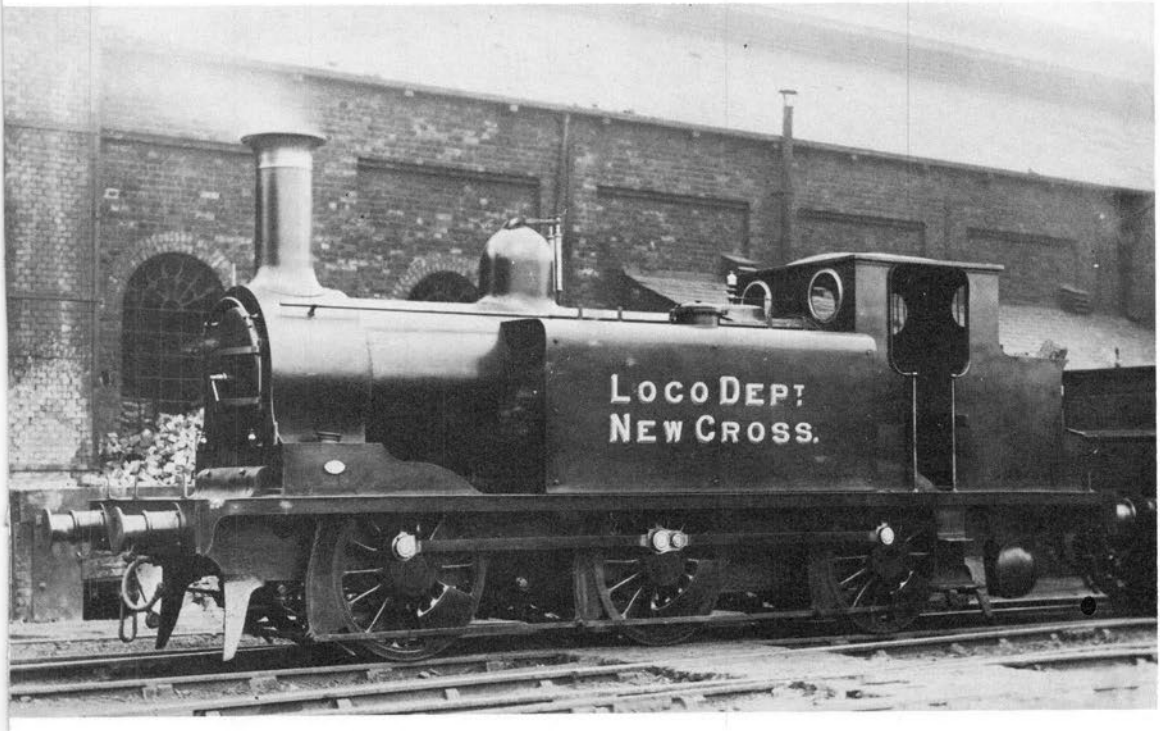
One major rebuild took place, but apparently it had one inherent problem which did not show any advantage over the existing design, and did not warrant any further examples. In 1911 No 89 was rebuilt with a boiler similar to that used on the Class D1X rebuild No 79A (see Section 5), and this locomotive was classified as an E1X. In fact, the rebuilding was more complete than in the case of the 'D-tank', because a new style of cab, tanks and bunker were added, as well as the new and larger boiler; resulting in a remarkably good-looking locomotive. The inherent problem was its

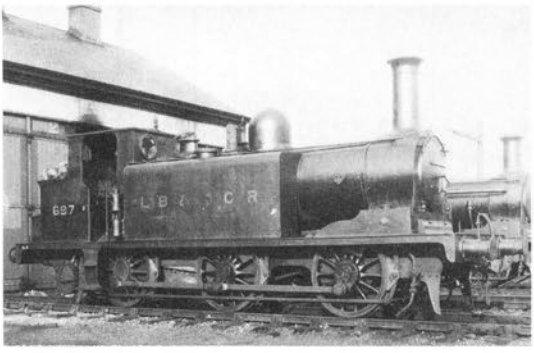
Above:
Class E1 No 99 was put into Service Stock as *Loco Dept Brighton* in March 1909, painted black with red lining. It was used to move 'dead' locos to and from Brighton Works and the nearby shed and yards, and for hauling 'spares vans'. Seen here on shed at Brighton, with 'D-tank' No 271, the 'E-tank' has a Billinton replacement boiler of his latter type with the dome moved back; no condensing pipes and no Westinghouse brake. *Ian Allan Library/Bucknall collection*

Above right:
Photographed on 12 March 1920 at Clapham Junction with a train off the West London Extension Railway, Class E1 0-6-0T No 606 and its antiquated train of four-wheelers, makes a nostalgic picture indeed; still full of 'Stroudley flavour'! Except for the provision of plated bunker coal rails, the engine is remarkably unscathed after 44 years of hard work, having started life as No 105 *Guernsey* in 1876.
H. C. Casserley

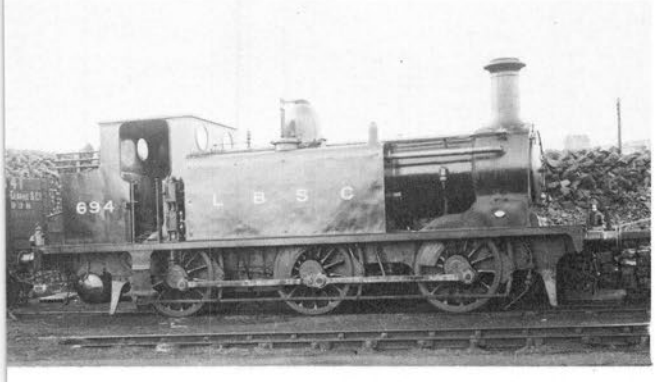
Right:
In 1908 a similar treatment had been given to No 111 which was lettered *Loco Dept New Cross* in rather larger shaded characters on the black tank side. This locomotive retained the wooden brake blocks but was fitted with the Westinghouse brake. Just before the Grouping both the Service Stock locos were returned to Capital Stock and received the numbers 611 (ex 111) and 610 (ex 99) respectively. *LPC*



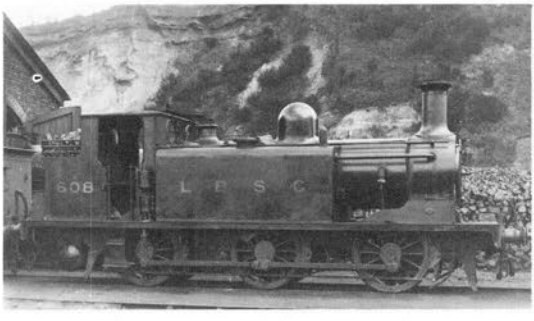

LOCO DEPT
NEW CROSS.



Left:
Although a Marsh boiler is carried, No 697, in rather well-worn black livery still sports a Stroudley chimney and original style bunker. The condensing pipes have been removed and the feed pumps, and the engine fitted with injectors. *Ian Allan Library/Madgwick collection*



Below left:
No two 'E-tanks' were exactly alike by the end of the LBSCR days it seems, with the various permutations of boiler, chimney, dome, condensing/non condensing, etc. No 694 displays a Marsh cast iron chimney but still has a pre-Marsh boiler and condensing pipes and feed pumps. The bunker has three coal rails, without plated backing and the sanding gear is steam operated.
Ian Allan Library/Madgwick collection



Bottom left:
No 608 (with a small B prefix painted above the number, so presumably photographed in early SR days), shows a fairly typical 'E-tank' of the period, with Marsh boiler and fittings, and still carrying the condensing pipes. The black livery of D. E. Marsh gave rise to the nickname of 'Black Tanks' for the Class E1s. *Real Photographs*

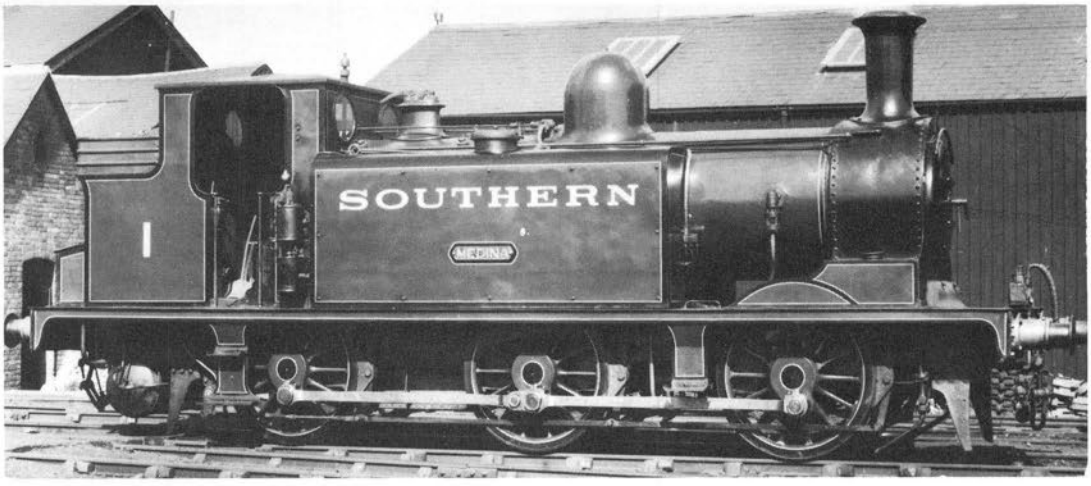
Top right:
Resplendent in Maunsell's green livery, with black and white lining and a neat brass nameplate with red background, Isle of Wight No 1 *Medina* (ex No 136 and originally *Brindisi*). This was one of four sent in 1932/3 (see text), and was fitted at Eastleigh with a Drummond chimney; the Marsh boiler had injector feed and no condensing, and the Westinghouse brake was employed for train working.
O. J. Morris/Ian Allan Library

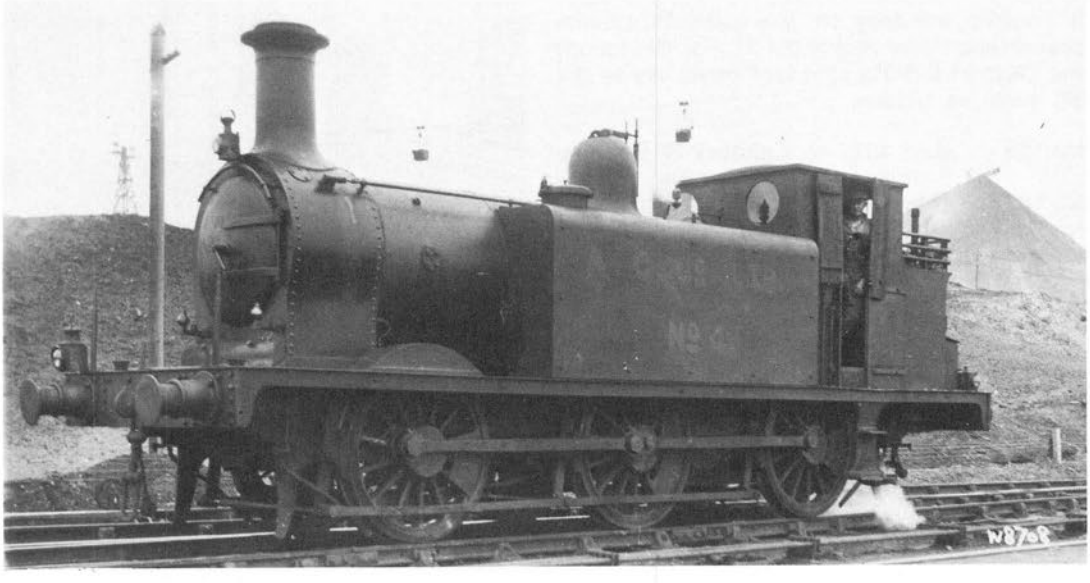
riding, which was aggravated by its high centre of gravity and which made it suspect at speed on certain curves and pointwork along the track. As the original 'E-tank' was already weak in this respect when at speed, placing a larger and higher-pitched boiler upon the existing wheelbase and wheel diameter was perhaps asking for trouble, and when the boiler became due for renewal in SR days (1930) it was wisely decided to return the locomotive to its Class E1 condition, using a spare Marsh boiler and various available standard parts.

The 'E-tanks' underwent much the same variety of changes as the 'D-tanks' already described, and it was possible to see combinations of Stroudley chimneys with Marsh or Billinton boilers, and Marsh chimneys with earlier boilers, during the

Above right:
Several 'E-tanks' surplus to SR requirements were sold for further use (for list see text, page 84). In 1932 the Ashington Colliery Co purchased No B163 (originally No 163 *Southwick* and gave it the legend *A.C. Co Ltd No 4* in shaded letters on the tankside. This was one of the R. J. Billinton batch built in 1891, and still carried a later-type Billinton boiler, but with a Marsh chimney, and coal rails. Wooden cab doors of local manufacture have been added as a protection against the bleak Northumberland climate! *Real Photographs*

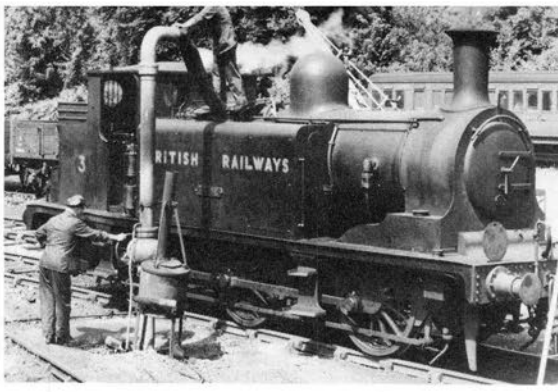
Right:
When the surplus of 'E-tanks' arose there was a need for some mixed-traffic tank locomotives in the West Country, with restricted axle loading but greater coal and water capacity than the 'E1s'. By lengthening the frames, adding a Maunsell 'N' class pony truck at the rear and a new Ashford-style bunker and cab, an attractive 0-6-2T design was produced and 10 were modified at Brighton works in 1927-29. All were painted in Maunsell's passenger green livery and all had Marsh-type boilers. No 2096 (formerly 96 and originally *Salzberg*), is seen at Eastleigh after attention to the wheel balancing due to rough riding problems. The vacuum brake was fitted and the engines had injectors instead of feed pumps. No 2096 sports a Drummond chimney, but the Marsh pattern was normally carried by the rebuilds. *Bluebell RPS Archives*


SOUTHERN
MEDINA



SOUTHERN
2096

period of Lawson Billinton's reign at Brighton, from 1911 until 1923, at which latter date there were still 62 Class E1 0-6-0Ts in service on the LBSCR plus the one Class E1X rebuild; withdrawals having commenced way back in 1908. The Southern Railway commenced a programme of fitting vacuum ejectors to the Stroudley survivors (not completed until 1939 in the case of the Class E1s,) and the new livery was goods black with green lining. However, it soon transpired that the SR had rather more of the type than it needed and no less than 25 were declared to be surplus in 1925, and offered for sale; to be followed by further redundancies in later years. This led to the first instance of a Class E1 actually being sold, (there had been a couple of earlier abortive sales,) when No 110 was purchased by the Cannock & Rugeley Colliery Company in 1927. It happily survives to this day, in private preservation (see Appendix 1). For the record the Class E1 0-6-0Ts sold for further use by the SR were as follows:



No 110	sold 1927 to Cannock & Rugeley Colliery Co.
No 163	sold 1932 to Ashington Coal Co.
No B607	sold 1934 to Broomhill Colliery
No 2143	sold 1936 to the Cowpen Coal Co.
No B92	sold 1936 to Messrs Frazer & Co, and then to the Hartley Main Colliery Co.

Happily the SR found two new roles for 14 of the class, and this gave them a further lease of life. Ten were rebuilt as 0-6-2T radial tanks for use in the West Country, and four were slightly modified for service on the Isle of Wight system. The ten 0-6-2T rebuilds had a new cab and bunker, with additional coal and water capacity. The new rear end extension was carried on a Class N 2-6-0-type pony truck, giving a good power to low weight ratio, which allowed the locomotives to operate over the heavily graded, sharp curvature, secondary routes of the West Country area. Once again, (history *does* repeat itself!) the passengers complained of the rough ride given to the train when hauled by one of these locomotives, and attempts were made to rebalance the coupled wheels; with some apparent success. Another use found for the Class E1R 0-6-2T rebuilds – as they were classified – was as banking locos between the two main line stations of Exeter. Details of the 10 rebuilds are as follows:

Original LBSCR No and Name	*Date Built*	*Renumbered*	*Rebuilt to Class E1R*	*SR Nos*
94 *Shorwell*	11/1883		31/5/1927	2094
95 *Luccombe*	11/1883		27/5/1927	2095
96 *Salzberg*	12/1883		18/10/1928	2096
99 *Bordeaux*	12/1874	610 6/1922	14/1/1929	2610
103 *Normandy*	9/1876	695 6/1913	27/10/1928	2695
104 *Brittany*	10/1876	696 10/1913	20/12/1928	2696
105 *Morlaix*	9/1876	697 4/1915	17/1/1929	2697
108 *Jersey*	11/1876	608 1/1916	13/11/1928	2608
124 *Bayonne*	8/1878		3/12/1928	2124
135 *Foligno*	1/1879		26/11/1928	2135

Above left:
During World War 2 the pre-war green livery gave way to plain black, and the 'E-tanks' that still survived were once again 'Black Tanks'! The earliest BR livery scheme – using green-shaded SR-type lettering is seen here on Isle of Wight No 3 *Ryde* filling up her tanks at Ventnor West sometime in 1948/9. The four Island examples continued in regular use until 1954, after which a lot of time was spent in store before withdrawal. No 3 *Ryde* was scrapped in 1959.
R. Russell

Left:
Another view of Class E1R 0-6-2T No 2096 heading a delightful 'mixed' passenger and goods train at Halwill Junction. The arrangement of the vacuum standpipe, the steam heating hose and the hooked-up screw link coupling are interesting modifications, whilst the Drummond chimney and Maunsell cab *almost* manage to camouflage the origins of the design! *Dr Ian C. Allen*

Above:
Also in the earliest 'British Railways' style, in black livery with yellow and green lettering and numerals No S 2153 (the S prefix stood for Southern Region), shunts a Portsmouth 4-COR electric set No 3069. It was condemned in June 1949, and is seen here in final condition, with dual vacuum and Westinghouse brakes fitted, plated coal rails on the bunker top and Marsh boiler, with injectors.
J. H. Aston/Lens of Sutton

Above right:
No doubt Stroudley would have shuddered with horror at the sight of the chimney carried on his 'E' class No 110 *Burgundy* in its final years of service! The 100th locomotive built by Stroudley for the LBSCR it had been 'toasted' in Burgundy wine when built in 1877, by Stroudley and selected Brighton Works staff at a dinner party held at Brighton Pavilion. Sold out of service by the SR to the Cannock & Rugeley Colliery Co in April 1927 it soon lost its Stroudley chimney, and gained a new non-standard boiler. As CRC No 9 (the numberplate was a 6 upside down)! *Cannock Wood* was still in use in July 1961 when the picture was taken. Brass lettering and surround to the small extra cab windows, and letters NCB painted below nameplate. The last 'E-tank' in BR service was withdrawn in the same month July 1961, so the NCB example lasted longer in steam. (See also Appendix 1.)
S. A. Leleux

The four examples for the Isle of Wight, just mentioned, were sent in 1932/3, and given the full Maunsell passenger green livery, complete with brass nameplates. They were overhauled at Eastleigh works prior to being shipped to the Island, and had injectors, cold feed and overhauled Westinghouse air brakes, (the Island's passenger trains were still worked by this system), and Drummond-style chimneys. They proved very successful in their new role – perhaps because speeds were only moderate with both the passenger and the good trains; while the enginemen seemed to tolerate the rough riding when used on passenger duties, probably because they had been accustomed to similar characteristics with the Stroudley 'Terriers'!

The survivors which were still in steam on the SR after World War 2 broke out were subsequently kept in use, for the main part, and given some new areas of work (such as Southampton Docks, Eastleigh and Reading) until Nationalisation in 1948. At that date 30 locomotives of the 'E1' class and 10 of the 'E1R' class were handed-over to British Railways ownership; including the four on the Isle of Wight system. In 1948 BR started withdrawals again, but some lingered on until the coming of the diesel shunters which finally ousted them from their useful habitats. The three working in the Southampton Docks area were given 'walkie-talkie' radios in 1955; these were Nos 32113, 32606/89. By 1960 the few survivors were worn-out, and the last on BR was No 32694 at work in the Eastleigh, Southampton, Winchester and Portsmouth area on shunting duties, until scrapped at Eastleigh in July 1961 (with a mileage since built of 1,524,493, a fine tribute to Stroudley's design!). One other Class E1 was still in steam, old No 110 *Burgundy*, owned by the National Coal Board and working at Rawnsby Colliery; it is now preserved but needs considerable restoration work.

The locomotives were built as follows:

Nos 97–102	Brighton	1874/5

Nos 103–110	Brighton	1876/7
Nos 111–116	Brighton	1877
Nos 117–138	Brighton	1877–1879
Nos 139–144	Brighton	1879
Nos 145–152	Brighton	1880
Nos 153–156	Brighton	1881
Nos 85–96	Brighton	1883
Nos 159–164*	Brighton	1891

*Modified design by R. J. Billinton

First of class withdrawn: Nos 93, 146, 5/1908, 10/1908
Last of class withdrawn: E1R: No 32697 11/1959 and E1: No 32694 7/1961 (BR)
Example preserved: NCB No 9 *Cannock Wood* (originally No 110 *Burgundy*)

The basic dimensions of the Class E1R, 0-6-2Ts converted by R. E. L. Maunsell, were as follows:

Cylinders:	17 in by 24 in
Coupled wheels:	4 ft 6 in
Trailing wheels:	3 ft 1 in
Wheelbase:	7 ft 6 in + 7 ft 9 in + 5 ft 6 in = 20 ft 9 in
Length over buffers:	32 ft 7¼ in
Boiler diameter:	4 ft 0 in
Boiler length:	10 ft 2 in
Firebox length:	83 sq ft
Heating surfaces:	
Tubes:	841 sq ft
Firebox:	83 sq ft
Total:	924 sq ft
Working pressure:	170lb/sq in
Grate area:	15½ sq ft
Weight empty:	39T 12c
Weight in working order:	
Leading coupled wheels:	14T 0c
Centre coupled wheels:	14T 5c
Trailing coupled wheels:	14T 0c
Radial wheels:	8T 0c
Total:	50T 5c
Water capacity:	
side tanks:	912gal
well tank:	348gal
Total:	1,260gal
Bunker capacity:	2¼ ton

The basic dimensions of the Class E, as first introduced, were as follows:

Cylinders:	17 in by 24 in
Coupled wheels:	4 ft 6 in
Wheelbase:	7 ft 6 in + 7 ft 9 in = 15 ft 3 in
Boiler diameter:	4 ft 0 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 2¼ in
Heating surfaces:	
Tubes (160 by 1¾in):	772 sq ft
Firebox:	84 sq ft
Total:	856 sq ft
Working pressure:	140lb/sq in (later 160lb/sq in
Grate area:	15.3 sq ft
Weight in working order:	
Leading coupled wheels:	12T 15c
Centre coupled wheels:	15T 10c
Trailing coupled wheels:	15T 18c
Total:	44T 3c
Water capacity:	900gal
Bunker capacity:	1½ ton

The basic dimensions of Class E1X No 89, as rebuilt by Marsh, were as follows:

Boiler diameter:	4 ft 6 in
Boiler length:	10 ft 7 in
Firebox length:	5 ft 2½ in
Tubes:	200 by 1¾ in
Heating surfaces:	
Tubes:	963½ sq ft
Firebox:	90 sq ft
Total:	1,053½ sq ft
Grate area:	15.6 sq ft
Working pressure:	170lb/sq in
Weight empty:	38T 17c
Weight in working order:	
Leading coupled wheels:	13T 11c
Centre coupled wheels:	17T 2c
Trailing coupled wheels:	18T 0c
Total:	48T 13c
Water and coal capacities:	980gal and 2 ton

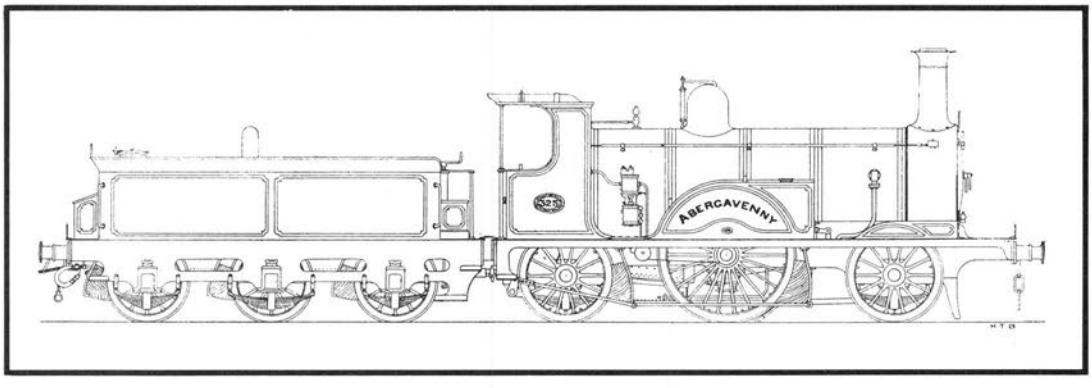
SECTION 8

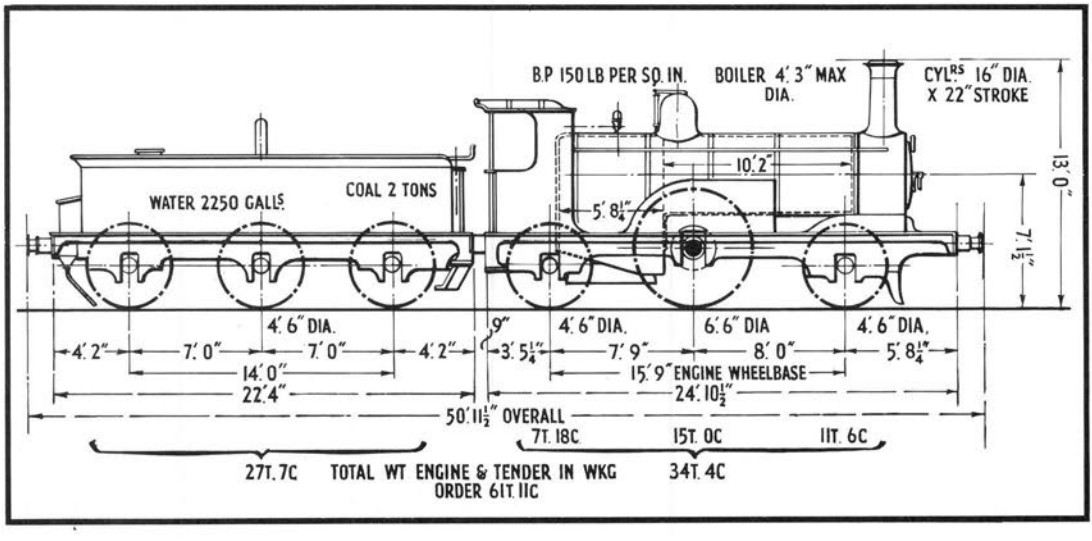
LBSCR Class F, later Class G 2-2-2
Passenger Engine
Introduced: 1877
Total: 1
Abergavenny

The second 'Stroudley Single' to appear was No 325 *Abergavenny* and was given the Class F. At first glance the locomotive appeared very similar to *Grosvenor*, and it was certainly every bit as beautiful to behold. Closer examination, however, revealed that it was somewhat *smaller*, being a slightly scaled-down version. This placed it more in the category of a light express passenger locomotive, (compare dimensions at end of Sections,) and it would appear that Stroudley was seeking the ideal size for such a wheel arrangement in 'Brighton' line conditions. J. N. Maskelyne has recorded that the locomotive was constructed at a leisurely pace at Brighton, from where it emerged in January 1877, and since between that date and December 1880 no further 'Singles' were built, we may assume that the comparative merits of the two engines in traffic, were being assessed.

A new outside-framed Stroudley tender was attached to No 325 *Abergavenny* and both this and the engine had wooden brake blocks fitted. On the engine, two large blocks acted upon the front of the driving and trailing wheels. The outside-frame tender design (which was later to be closely copied by Dugald Drummond on the NBR,) had underhung springing. The capacity was for 2,520gal water and 6½ton of coal. When this tender was required for a new

Below:
Stroudley's second and smaller 'Single', originally Class F, No 325 *Abergavenny* shown in the drawing in its original form, with an outside-framed Stroudley tender and wooden brake blocks, and after the addition of the Westinghouse brake in 1880.



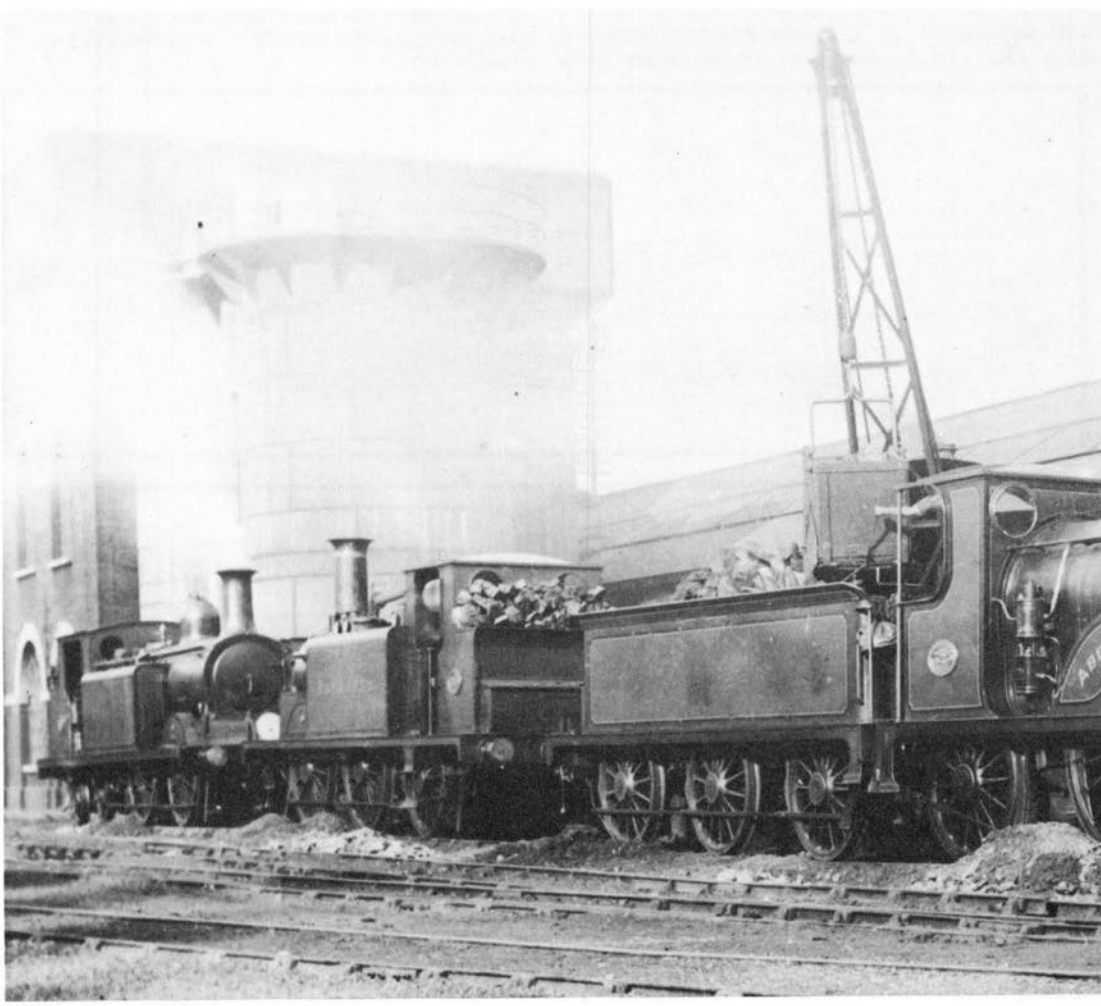


'Jumbo' 0-6-0 goods loco, the 'Single' ran with an old Craven tender until one of Stroudley's fine new Standard inside-framed tenders was built for it.

When new, *Abergavenny* was distinguished by having the wheels left unpainted and highly polished; the driving wheels being of wrought-iron. Later, cast steel driving wheels were fitted (painted in standard colours,) but for some reason the wooden brake blocks were retained, although the modern tender had iron brake shoes. A feature of this final tender, never fully explained, was that it was painted and lined with only a single panel of golden ochre, instead of the normal two. It has been suggested that it was intended to paint the LBSCR company name, or initials, in this long space; nothing ever actually being done.

Whereas the big No 326 *Grosvenor* was usually to be found hard at work on the best Brighton and Portsmouth line business trains, the smaller No 325 *Abergavenny* was put to use on the night boat train to Newhaven for a number of years. The small size of its cylinders, 16in by 22in, must have caused it to lack a reserve of power when compared to No 326, and whereas the latter worked out practically its whole career in main line running. No 325

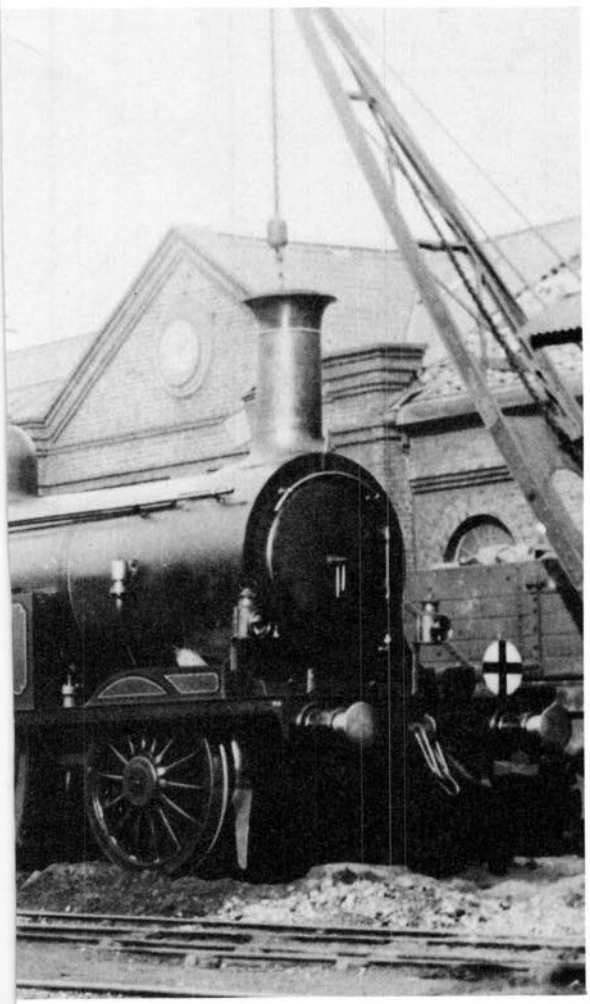
Below:
Standing on shed at Brighton, in company with 'D-tank' No 268 *Baynards* and an R. J. Billinton 'D3' class 0-4-4T No 325, *Abergavenny* is seen in its latterday condition, with an inside-framed Stroudley tender attached. Points of interest are the single panel painted on the tender side instead of the usual two-panel layout, and the number painted on the front bufferbeam, (*just* visible in the original photograph). The engine remained with wooden brake blocks throughout its existence, but the final tender, shown here, had the more modern clasp-type cast iron brakes fitted. It was withdrawn on Marsh's orders, in 1909. *Bluebell RPS Archives*



Abergavenny was later put to less exacting semi-fast duties, such as between Victoria and Tunbridge Wells, which nevertheless sometimes involved substantial loads of up to 15 vehicles; (some going forward to Eastbourne).

The withdrawal of No 325 *Abergavenny* in June 1909 is the subject of 'Brighton' folklore. Apparently, the locomotive had been worked as usual from Victoria to Tunbridge Wells, on the afternoon 3.45 pm duty. Upon arrival it was immediately commandeered to replace a failed locomotive which had been rostered to work a train from Tunbridge Wells to Brighton, via Lewes; not an ideal route for single-drivers! It seems that *Abergavenny* reached Lewes without mishap, and despite a heavy load. After Lewes, the English weather now played its part, in the form of torrential summer rain (calculated to make the rails greasy,) and the gallant little engine slipped to a complete standstill on the formidable Falmer bank; causing considerable delay. Now, such an experience with a 'Single' was by no means unique, and most drivers dreaded such freak weather conditions, and perhaps the event would have been duly dismissed as inevitable, but unfortunately one passenger on board the train that day was Mr D. E. Marsh, then the Locomotive Superintendent at Brighton! Marsh was apparently so exasperated by the delay that the very next day he gave orders for *Abergavenny* to be withdrawn. In all fairness to Marsh, quite a few of the later G class 'Singles' had already been withdrawn, also *Grosvenor*, but it is claimed that there was nothing *mechanically* wrong with *Abergavenny* when condemned.

The locomotive was built as follows:
No 325 Brighton 1877
Withdrawn: 6/1909
Not preserved



The basic dimensions of the engine as first introduced were as follows:

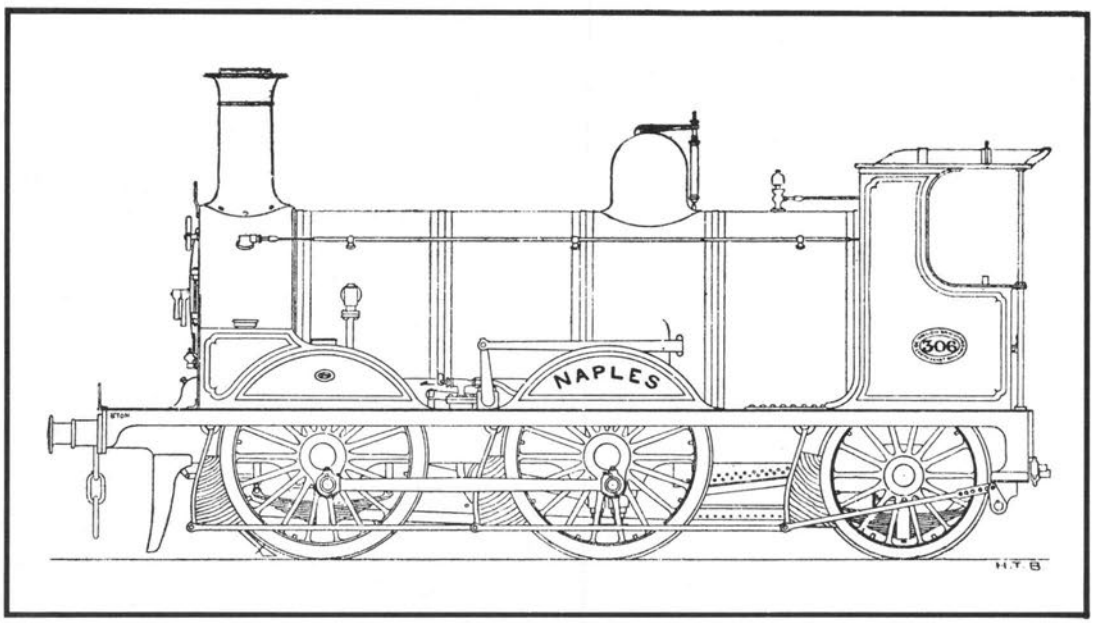
Cylinders:	16 in by 22 in
Leading and trailing wheels:	4 ft 6 in
Driving wheels:	6 ft 6 in
Wheelbase:	8 ft 0 in + 7 ft 9 in = 15 ft 9 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 8¼ in
Boiler pitch:	7 ft 1½ in
Heating surfaces:	
Tubes (202 by 1¾in):	971 sq ft
Firebox:	100 sq ft
Total:	1071 sq ft
Grate area:	17 sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Weight in working order:	
Leading wheels:	11T 6c
Driving wheels:	15T 0c
Trailing wheels:	7T 18c
Engine total:	34T 4c
Tender (2,520gal):	27T 7c
Engine and Tender:	61T 11c

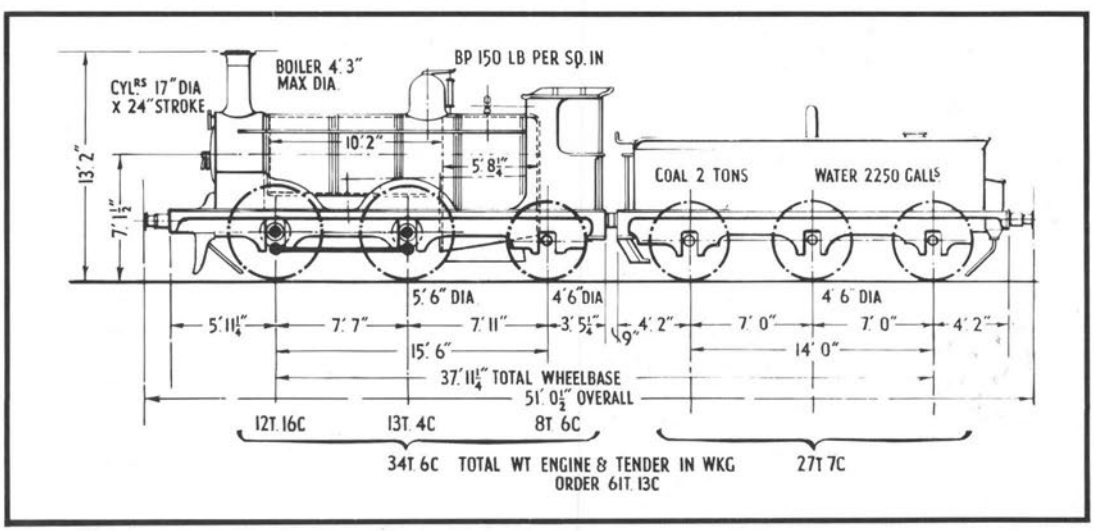
SECTION 9

LBSCR Class D, later Class D2
0-4-2 Mixed traffic engines
Introduced: 1876
Total built: 14
'Lyons'

In September 1876 Stroudley produced the first of his 0-4-2 tender locomotives, a close relative of his 'D-tank' 0-4-2T design, with many parts standard, and details and fittings interchangeable, including the whole of the valve motion, cylinders, wheels and side rods. The idea of tender version of the 0-4-2 wheel arrangement was to increase coal and water capacity for a locomotive which had already proved itself in tank engine form. The fast fruit trains from Worthing to London, and the 'Grande Vitesse' Newhaven boat train service were particularly in mind, and the new class quickly proved its worth on these and on excursion train duties and heavy stopping passenger trains as well.

The 5ft 6in diameter coupled wheels and the 4ft 6in diameter trailing wheel were all braked by large wooden blocks acting on the leading edge only, and the engines were Westing-





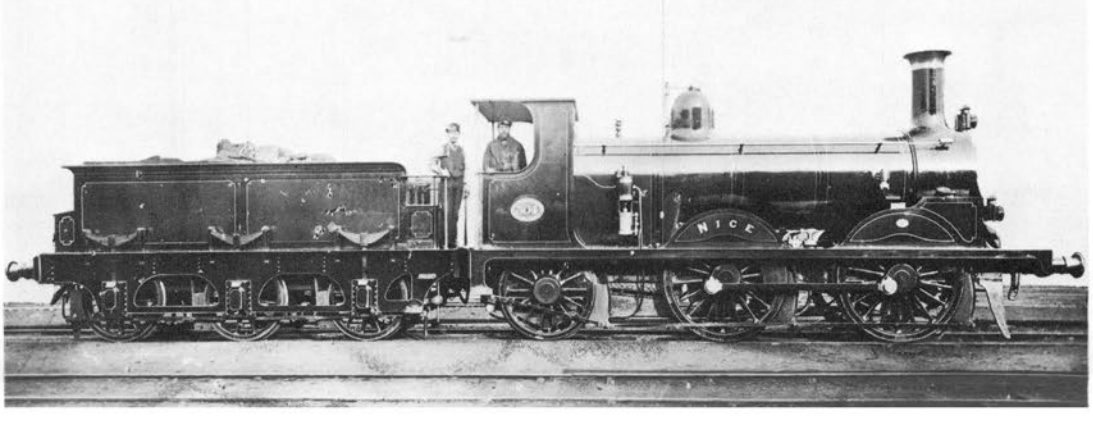
Left:
The drawing shows 'Lyons' class 0-4-2 No 306 *Naples*, and the first arrangement of the reversing rod which passed beneath the firebox cladding, whereas on Nos 308-313 it was outside the cleading. Wooden brake blocks, which were steam-brake operated on the engine before fitting of the Westinghouse air brake in 1879-1883. Plain three link front coupling.

Above:
Although the first two 'Lyons' class locomotives Nos 300/1 were delivered to traffic in 1876/7 with outside framed Stroudley tenders, these were removed in 1884 and used with Class C1 0-6-0 goods engine. Secondhand Craven tenders were then used, (and on all subsequent locos of the class); suitably rebuilt to Stroudley's requirements. No 306 *Naples*, built in 1878 is seen here attached to a Craven tender. The engine and tender have wooden brake blocks, and the engine is fitted with the Westinghouse brake. The Stroudley golden ochre paintwork was well worn when this photograph was taken, especially in areas exposed to heat. (This explains the curious effect on the tender side, where the portion without paint is the tank area, where the heated feedwater has blistered the paint away from the *inside*!)
Bluebell RPS Archives

Below:
A broadside view of 'Lyons' class 0-4-2 No 304 *Nice*, (all the names had to be short ones, in order to fit the small driving wheel splasher), showing the Westinghouse pump and Craven tender, with wooden brake blocks to all wheels.
A. B. MacLeod collection

house brake fitted in 1879, having originally carried a somewhat over-effective steam-operated brake which caused some complaints from passengers! The first two locomotives were introduced cautiously by Stroudley, and the first one No 300 *Lyons* ran for six months before the second one appeared; they were built in 1876/7. Six basically similar ones were built in 1878, and the design was so well liked for its particular duties, that the class was further added to in 1883 to make a total of 14. The 1883 build had castiron brake shoes and clasp brakes to the coupled wheels and a number of detail improvements including steel frames, power assisted wheel and screw reverse, and steam lubrication to the leading coupled wheel flanges. This latter feature was a small copper pipe which led from the exhaust branch to the tender (feedwater heating) as it left the steamchest, and it was looped around the leading sandpipe to direct a jet of (by then *cold*) water against the leading coupled wheeltreads and flanges to keep them clean and so improve – in theory – adhesion. (This feature was also applied to the later and larger 0-4-2s.)

The tenders attached to the 'Lyons' class, as it became popularly known, were a mixed collection, with Nos 300/1 at first attached to new Stroudley design outside-framed tenders,



but latterly running with older Craven-era tenders. Nos 302-307 were delivered with rebuilt Craven tenders, whereas Nos 308-313 all had the inside-framed 2,238gal Stroudley design, complete with castiron brake shoes for the standard 4ft 6in diameter carrying wheels. A curious feature on these later-type tenders, (and on those of the 'Gladstone' class) was the provision of a back sandbox, manually operated, with a gravity drop. The engines with the earlier Craven, or Stroudley tenders probably suffered from bad riding at the higher speeds, and the newer inside-frame version was perhaps a more steadying influence; nonetheless it is recorded that the riding and comfort of the 'D-tank' was superior.

The subsequent careers of the 'Lyons' class found them all over the LBSCR system in their later years, and they were much liked for their general usefulness – a true mixed traffic type. However, being only 14 in number probably influenced R. J. Billinton against a policy of rebuilding, when the boilers, fireboxes and cylinders began to wear out, and the first withdrawals took place in 1902/3, and all had gone by 1907.

The locomotives were built as follows:

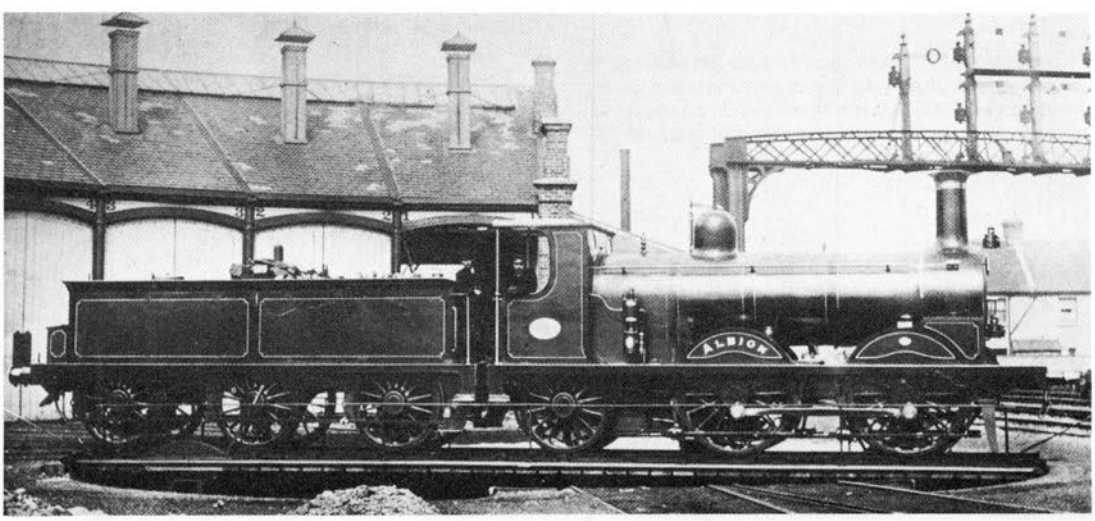
Nos 300/1	Brighton	1876/7
Nos 302–307	Brighton	1877/8*
Nos 308–313	Brighton	1883

*Not delivered to traffic in correct numerical order, (see RCTS history for details).
First of class withdrawn: Nos 301/6 11/1902
Last of class withdrawn: Nos 309/313 3/1907†
†Stored out of use since 1901/3 at Horsted Keynes.
None preserved

The basic dimensions of the 'D2' class, as first introduced, were as follows:

Cylinders:	17 in by 24 in
Coupled wheels	5 ft 6 in
Trailing wheels	4 ft 6 in
Wheelbase:	7 ft 7 in + 7 ft 11 in = 15 ft 6 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 8¼ in
Boiler pitch:	7 ft 1½ in
Heating surfaces:	
Tubes (202 by 1¾ in):	971 sq ft
Firebox:	100 sq ft
Total:	1,071 sq ft
Grate area:	17 sq ft
Working pressure:	140lb/sq in (later 150lb/sq in
Weight in working order:	
Leading coupled wheels:	12T 16C
Trailing coupled wheels:	13T 4C
Trailing wheels:	8T 6C
Engine total:	34T 6C
Tender total:	27T 7C
Engine and tender:	61T 13C

Below:
In every case, the Stroudley inside-framed tender gave a more imposing air to the engine coupled to it. Compare this picture of No 312 *Albion*, with the preceding one, and it surely speaks for itself! Once again, the small turntable is evident; a restriction upon the length of all Stroudley's tender engines during his lifetime. *Ian Allan Library*

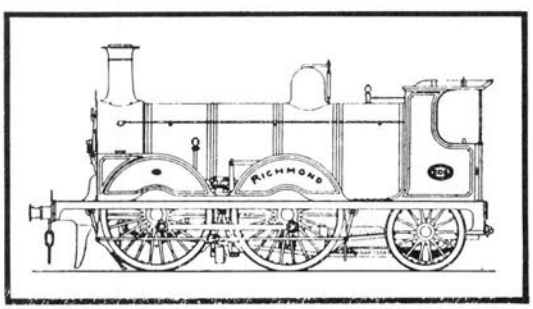


LBSCR Class B
0-4-2 Express Passenger Engines
Introduced: 1878
Total built: 6
'Richmonds'

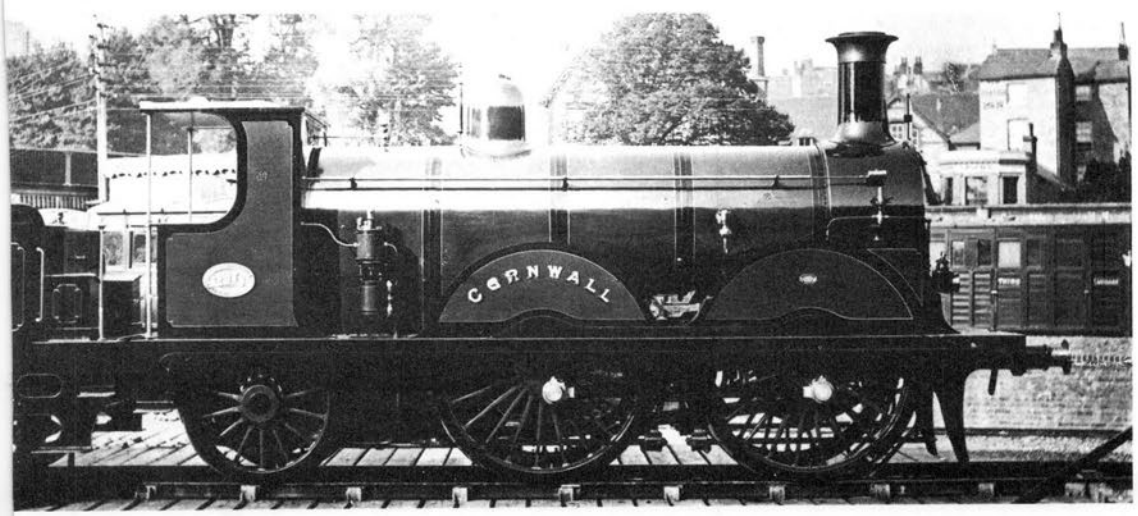
Stroudley must have been much encouraged by the everyday performance, and the enginemen's acceptance, of his mixed traffic 'Lyons' 0-4-2 class, and in view of the restrictions imposed upon him by the size of turntables and the distances and nature of the LBSCR routes, he therefore decided to pursue the leading four-coupled wheel arrangement in terms of an express passenger locomotive, and produced the 6ft 6in diameter 'Richmond' class locos specifically for such duties. (The 8.45am Brighton to London express being at the time quoted as *the* train requiring superior power to the existing Craven, and earlier Stroudley types.) It is an interesting, and all too often overlooked, fact of later-Victorian railway progress that the size and weight, (and general comfort and amenity), of the passenger carriages was steadily pursued. To power these heavier loads, larger locomotives were required, with better brakes and adhesion. Stroudley was therefore seeking a design able to meet these requirements without the expense of rebuilding the turntables.

Criticism abounded at the time of the 'Richmond' class's introduction, at the idea of placing large driving wheels at the front end, without any guiding wheels of smaller diameter ahead of them. Stroudley had an answer to this however, (see Section 13 for more detail), and was not to be deterred from

Right:
The idea of using the 0-4-2 layout with larger coupled wheels for passenger train duties, led to the introduction of the 'Richmond' class in 1878. The drawing shows No 208 *Richmond* as built.



Below:
Standing on the turntable at the old 1857 Lewes station, (photographed in the 1880s) 'Richmond' class 0-4-2 No 210 *Cornwall* is in impeccable Stroudley condition, and serves to show how attractive his locomotives looked in the Sussex landscape. No 210 has the original outside-framed tender, just visible, which was later replaced by the inside-framed design. *Edward Reeves/Bluebell RPS*



his ideals; time and experience happily proving him to be correct. In fact the 'Richmonds' are on record as being steadier riding than the later 'Gladstones'.

Just as cautiously as with the first of the 'Lyons' class, Stroudley produced one engine No 208 *Richmond* in September 1878 and ran it for some months before proceeding with the construction of five more in 1879/80. When new they had the outside-framed tender design attached, but these tenders were given to Class C1 goods engine in 1882 (see Section 12), and the inside-framed type, which was better riding, replaced them. There was steam lubrication for the leading coupled driving wheel flanges (see previous Section), and cast-iron brake blocks of the clasp type, arranged in cross-pairs, with independent brake cylinders for each pair of coupled wheels. Because the boiler was pitched high, the chimney was shorter than on any other Stroudley class, and there was a larger diameter to the smokebox than to the boiler barrel.

Until the arrival of the bigger 'Gladstone' class in 1882 the 'Richmonds' were considered to be top link express engines on the Brighton line, and when displaced they were mostly sent to Eastbourne, and then the class went to St Leonards for the Hastings-London trains, where they were eventually displaced by R. J. Billinton's Class B2 4-4-0s in the early 1900s. While at St Leonards No 210 *Cornwall* was fitted in 1892 with vacuum ejectors for hauling vacuum braked trains coming off the South Eastern. Their final days at St Leonards were spent on the stopping trains to Eastbourne and Brighton, except for No 613 *Norfolk* which was stationed at Brighton and worked mainly on the light Portsmouth trains. Billinton did not consider it worthwhile fitting new boilers to such a small class, and in any case he was busy producing 4-4-0 replacements, and the withdrawal of the class began in 1901. In the same year, No 611 (originally 211 *Beaconsfield*, renamed *Cavendish*), went to Horsham until condemned in December 1902. One locomotive No 610 (originally 210 *Cornwall*, renamed *Belgravia*), lasted longer than the rest at St Leonards and was even employed on semi-fast London trains before a crank axle failure spelt its demise in November 1904.

The locomotives were built as follows:

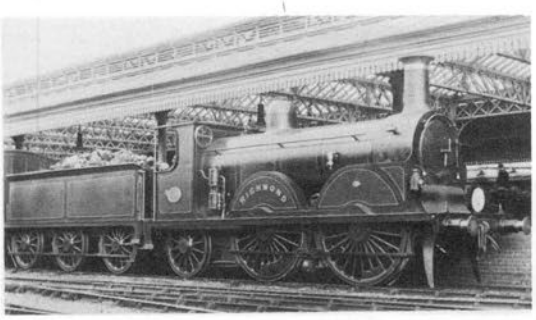
No 208	Brighton	1878
Nos 209-213	Brighton	1879/80

First of class withdrawn: No 209 4/1901
Last of class withdrawn: No 210 11/1904
None preserved

The basic dimensions of the 'Richmond' class, as first introduced were as follows:

Cylinders:	17¼ in by 26 in
Coupled wheels:	6 ft 6 in
Trailing wheels:	4 ft 6 in
Wheelbase:	7 ft 7 in + 8 ft 0 in = 15 ft 7 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 8¼ in
Boiler pitch:	7 ft 5½ in
Heating surfaces:	
Tubes (202 × 1¾ in):	1,074 sq ft
Firebox:	99 sq ft
Total:	1,173 sq ft
Grate area:	17 sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Weight in working order:	
Leading coupled wheels:	14T 0C
Trailing coupled wheels:	15T 0C
Trailing wheels:	8T 0C
Engine total:	37T 0C
Tender (2,520gal):	30T 10C
Engine and tender:	67T 10C

Below:
The 'Richmond' class 0-4-2s were certainly very handsome locomotives, particularly when they were later given Stroudley's inside-framed tender. The smokebox was slightly larger in diameter than the boiler, and because of the high pitch of the boiler, the chimney was shorter than on any other Stroudley class; nonetheless as attractive. No 608 (originally No 208) *Richmond* is seen here at Eastbourne in the early Edwardian period – still very much as Stroudley had conceived her. Note the arrangement of clasp brakes, in pairs on the two coupled wheels.
M. P. Bennett/Bluebell RPS Archives



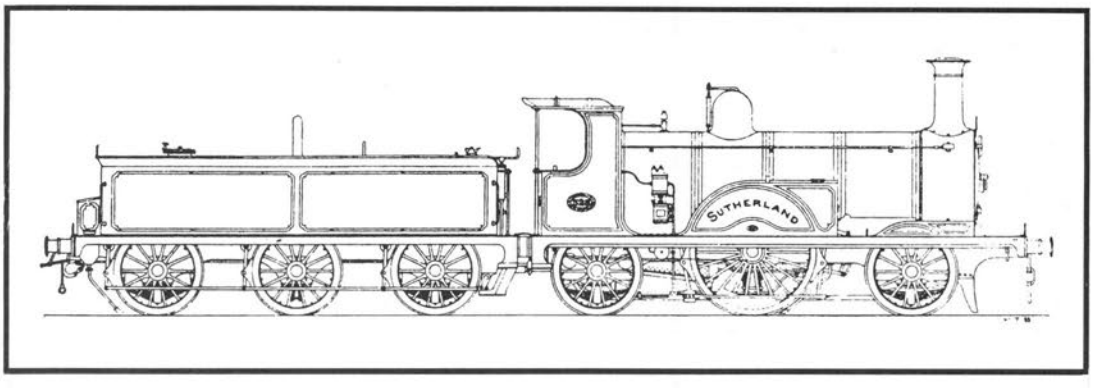
SECTION 11

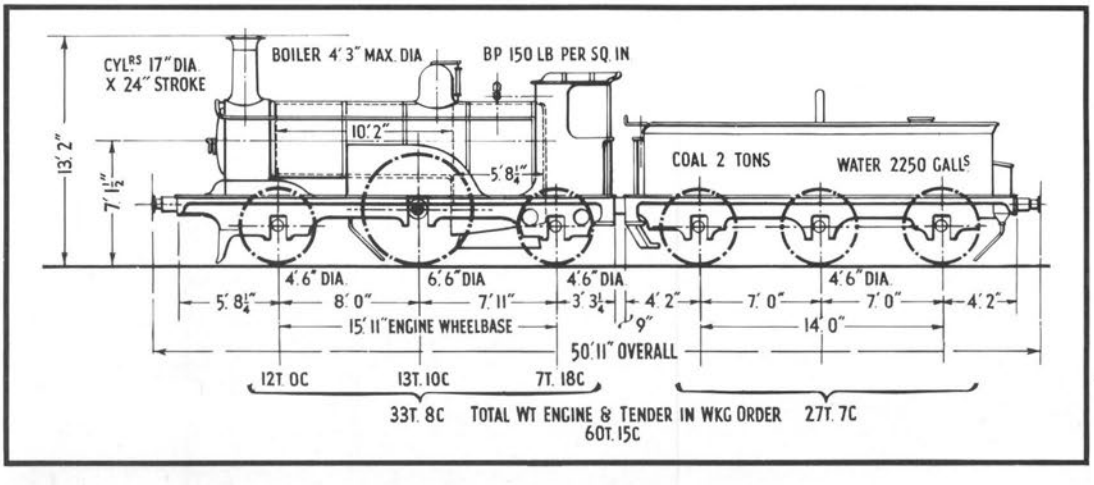
LBSCR Class G
2-2-2 Passenger Engines
Introduced: 1880
Total built: 24
'Singles'

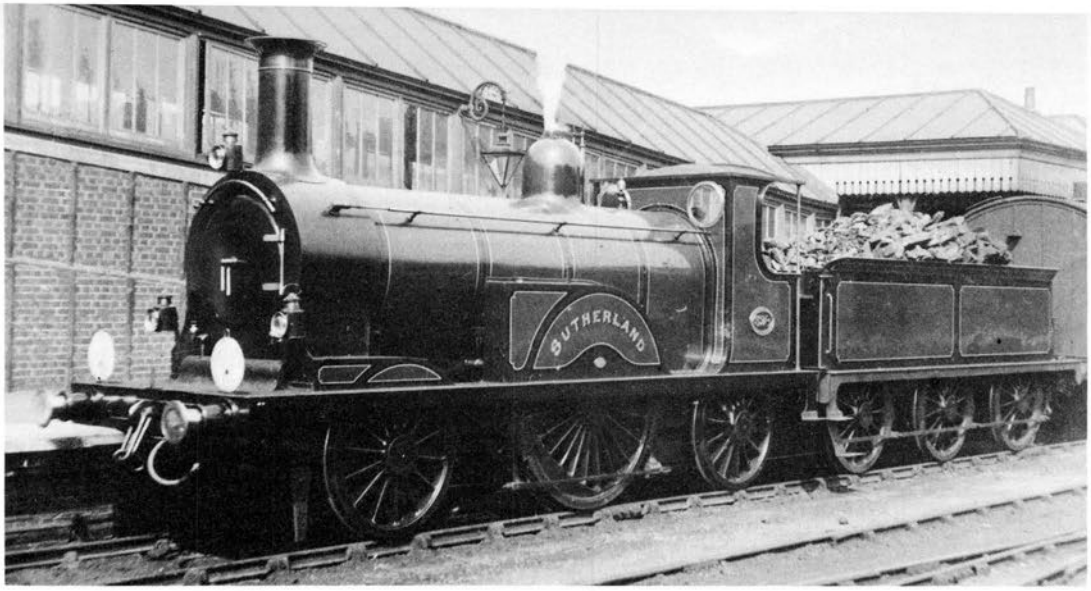
The Standard Class G 2-2-2s commenced service in 1880 with No 327 *Imberhorne*; the first of an initial order for 12 later increased to 24. (Twenty-six was the grand total once the two earlier locomotives were incorporated into the 'G' classification.) The design could be described as a compromise between *Grosvenor* and *Abergavenny*, and they were set to work on the main line services over the principal LBSCR routes, with the Portsmouth line becoming their particular stronghold. The single driving axle, while prone to wheelslip when starting a heavy load from rest, proved to be very sure-footed once on the move, and the severe gradients of the Portsmouth route did not deter them; of course once 'over the top' the speed rose rapidly. What a splendid sight it must have been to see one of these gleaming golden ochre engines speeding along, with the 6ft 6in driving wheel spinning without visible valve motion; apparently effortlessly. The big wheel, and the large 4ft 6in diameter trailing wheels (matched by those on the inside-framed standard tenders) gave rise to one famous railway historian, E. L. Ahrons, describing them as 'all legs'.

The 'G' class had steel frames, an increased wheelbase and wheel and screw reverse instead of lever reverse. They were built new with the standard inside-frame tender attached; with the Westinghouse brake and with metal brake shoes. Improved feed pumps were fitted. The use of steel frames very slightly reduced their weight. When new all the class had wrought-iron driving wheels with rectangular balance weights, but in due course

Below:
The drawing shows No 328 *Sutherland*, in standard Stroudley condition, with Westinghouse brake, cast iron brake shoes, and large inside-framed tender attached.





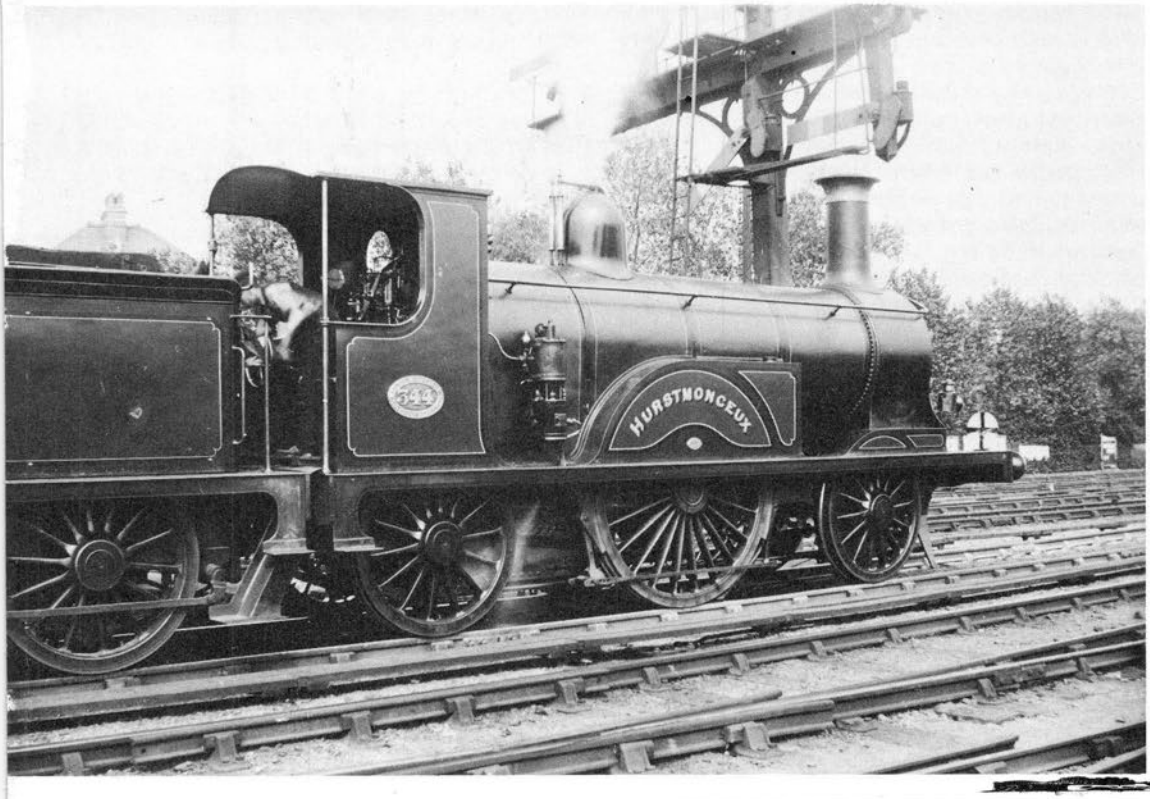


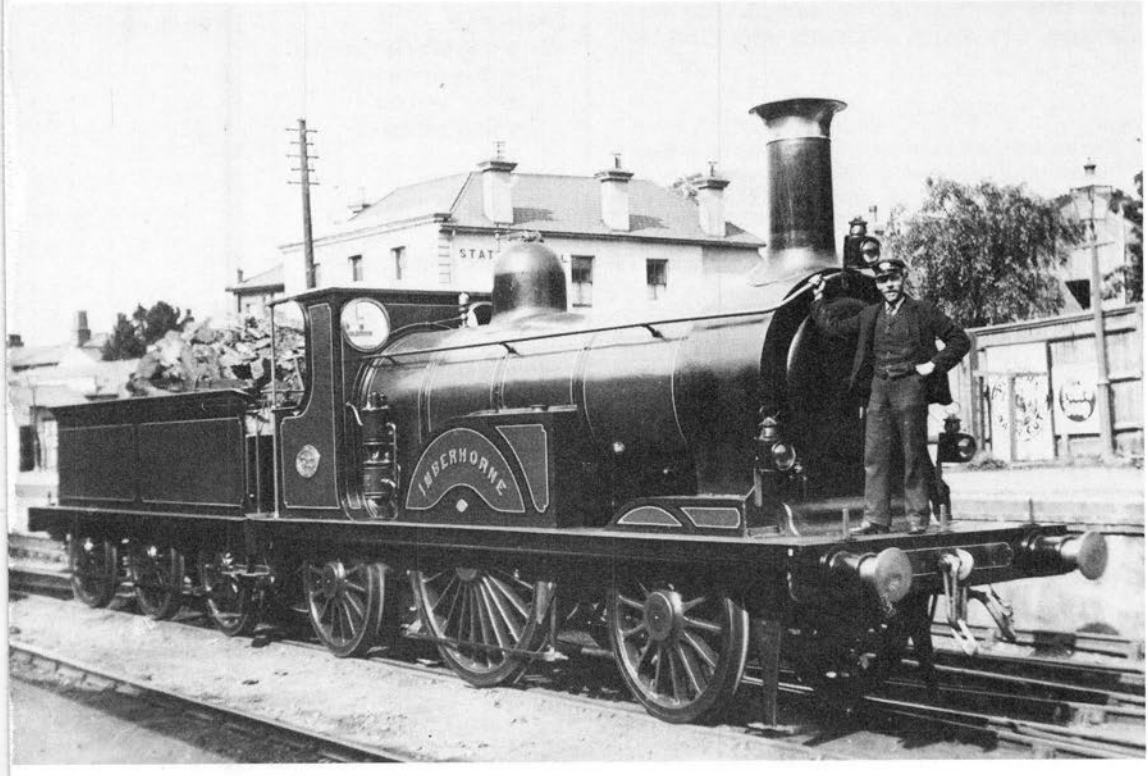
Above:
All the grace and elegance of the Stroudley 'Singles' is seen to advantage in this classic study of No 328 *Sutherland* taken at East Croydon station around the turn of the century. The 'G' standard 'Singles' remained in golden ochre for their entire careers, and how beautiful it made them look! With a nice head of steam No 328 prepares to depart and the big single driving wheel is poised to commence its task, apparently effortlessly as there was no valve motion visible to eye of the beholder. *E. T. Vyse/J. H. Price collection*

Right:
A striking rear-threequarter study of 'G' class 2-2-2 No 344 *Hurstmonceux*, taken at Hove as it is prepared for the 'right-away'. The safety valves have lifted and the Westinghouse pump has been busy providing air for the train brake. From this angle the large diameter of the tender and engine carrying wheels is emphasised, also the raked-back tender footstep. *Bluebell RPS Archives*

Below:
Class G 'Single' No 341 *Parkhurst* was specially fitted in 1892 with the vacuum brake for train working, in addition to the standard Westinghouse air brake. This was because it was stationed at Portsmouth and was sometimes required to work through trains coming from the London & South Western Railway, which were vacuum braked. The addition of vacuum ejectors with the pipe along the boiler side and prominent standpipe on the bufferbeam made it easy to recognise. The crew pose proudly on No 341 *Parkhurst* in this picture taken at Hove. Later in its career the engine went to St Leonards, to work the through vacuum-braked trains from the South Eastern & Chatham Railway. *LPC*

Below right:
R. J. Billinton gave some engines of the class replacement boilers, as well as fitting new fireboxes to existing boilers in some instances, and on some he replaced the Stroudley handrails with a continuous one around the engine from firebox to smokebox front, and back, as seen in the driver's hand of No 327 *Imberhorne*. Billinton's successor, D. Earle Marsh started withdrawals of the class in 1907 as they evidently did not fit into his 'big engine' policy for express passenger trains. The last to go was No 329A *Stephenson* in May 1914 – still in Stroudley's livery. *Bluebell RPS Archives*


HURSTMONCEUX


LEIGH HORNE

when replacements were needed, cast-steel wheels with crescent shaped balance weights and rounded-section spokes were used.

A special exhibition finish and choice of name was given to No 329 *Stephenson*, which, soon after construction, was sent to the Stephenson centenary celebrations at Newcastle; taking part in the Wylam parade of old and new locomotives. This locomotive was destined to be the last of the class in service; running until May 1914. Even then her story was not ended, because the boiler was rescued from scrap by HM Government and reconditioned for war hospital service in France; supplying steam at No 7 Base Hospital Rennes. A favourite turn of No 329 *Stephenson* in the early 1900s had been the Sundays only 'Eastbourne Pullman'.

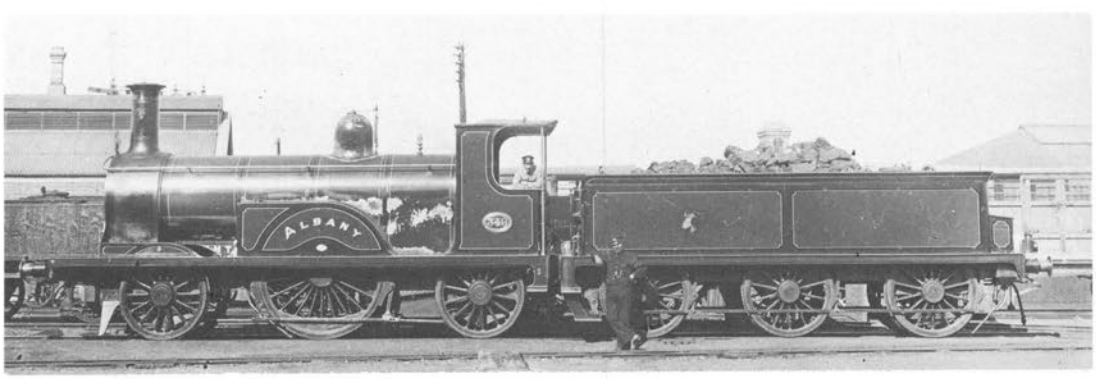
It was only the introduction of the R. J. Billinton 4-4-0s of Class B2 that ousted the gallant 'Singles' from the Portsmouth main line; although many drivers openly preferred them to the new, and evidently underpowered replacements! Most of the class were then transferred to the Tunbridge Wells services; some were stationed at Brighton and Portsmouth for semi-fast coast line duties or 'piloting' on express trains. To the end of their days all the 'Singles' carried golden ochre livery and kept their names. Billinton had given some new boilers, of his design, and new fireboxes, but Marsh evidently saw little use for the class and stored some pending withdrawals, which commenced in 1907.

The locomotives were built as follows:
Nos 327-350 Brighton 1880-1882
First of class withdrawn: Nos 335/6 5/1907
Last of class withdrawn: No 329 5/1914
None preserved

The basic dimensions of the class as first introduced were as follows:

Cylinders:	17 in by 24 in
Leading and Trailing wheels:	4 ft 6 in
Driving wheels:	6 ft 6 in
Wheelbase:	8 ft 0 in + 7 ft 11 in = 15 ft 11 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 8¼ in
Boiler pitch:	7 ft 1½ in
Heating surfaces:	
Tubes (262 × 1½):	1084½ sq ft
Firebox:	99¾ sq ft
Total:	1184¼ sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Grate area:	17 sq ft
Weight in working order:	
Leading wheels:	12T 0C
Driving wheels:	13T 10C
Trailing wheels:	7T 18C
Engine total:	33T 8C
Tender (2,250gal)	27T 7C
Engine and tender:	60T 15C

Below:
Despite the fact that the paintwork has been scorched down to the base metal on the firebox sides, the crew still lovingly-polished their charge; such was the pride in the job! No 349 *Albany* gives us a very clear broadside view of Stroudley's standard 'G' class singles. A characteristic of the large inside framed tender was the raked-back double footstep at the inner end, (seen with the engine driver standing alongside). Stroudley evidently considered one footstep each side on engine, and tender, was sufficient for his designs. *LPC*



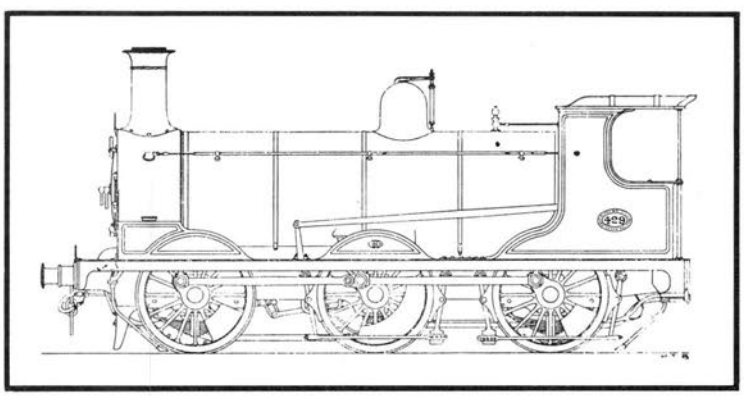
SECTION 12

LBSCR Class C, later Class C1
0-6-0 Goods Engines
Introduced: 1882
Total: 12
'Jumbos'

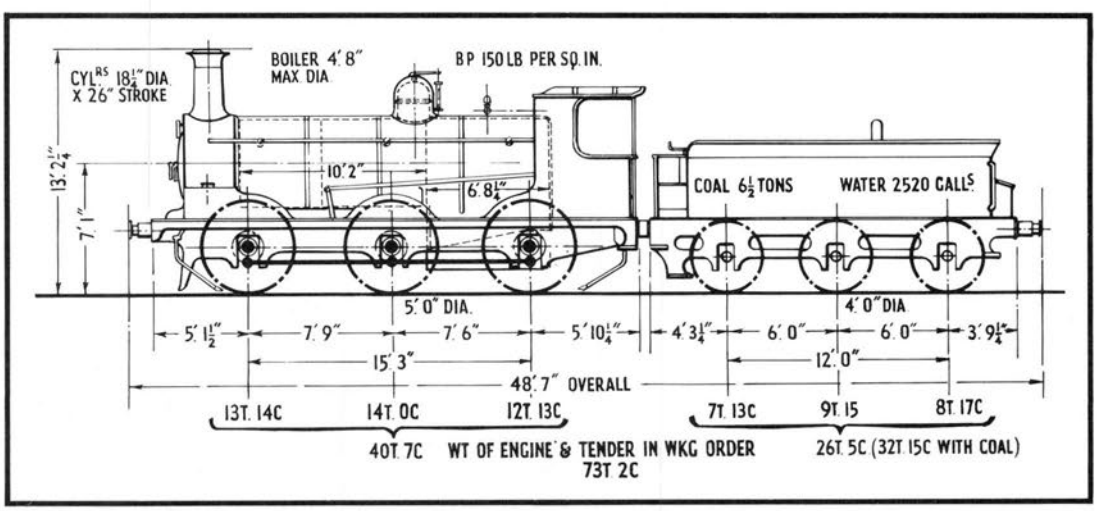
Known officially as the 'large C class' and unofficially as the 'Jumbos', these locomotives were certainly large, at the time of their introduction in 1882. Perhaps the reference to an elephant was not entirely kind, however, because the boiler was an indifferent steamer, and gave a sluggish performance to the locos. The boilers were the largest that Stroudley ever designed, but by no means his most successful. There was a persistent problem with 'priming' and the enginemen were skilled indeed to get the creditable performance out of the class that they did, on the road. They worked the heaviest goods trains on the LBSCR system, and it was soon discovered that attempts to use them on summer excursion train duties were best avoided – they were definitely *goods* engines!

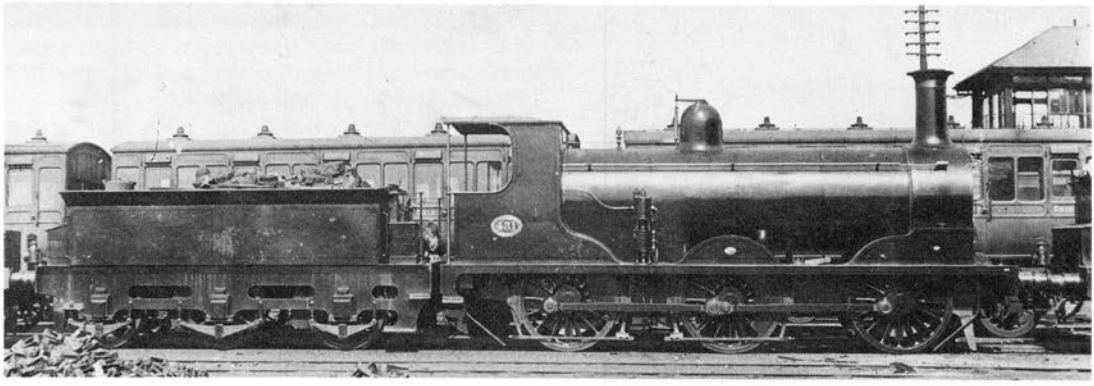
The 'Jumbos' were based upon the earlier Class C goods engines (see Section 2) but had the Westinghouse brake fitted, and the main frames were of steel construction, and the boiler was larger in diameter, slightly shorter and with a big firebox. Externally they carried all the visual Stroudley trimmings, and when new they were finished in the goods engine green livery with black and fine red lining-out.

The tenders fitted were secondhand outside-framed Stroudley-type (off the 'Richmonds' and 'Lyons', *Grosvenor* and *Abergavenny*), and new inside-framed tenders were built at the same time as the 'Jumbos', to be given to the passenger engines. As the outside-framed design was known as a rough-rider at speed, their use on the slower goods engines was sensible enough. At one stage there were only 10 tenders available for the 12 engines of the class, and the shortage



Left:
The drawing illustrates the large Class C1 0-6-0 goods engine No 429, of the second batch built (see text) with the reversing rod outside the firebox cladding. Clasp-type cast iron brake shoes acting upon centre driving and rear coupled wheels only.



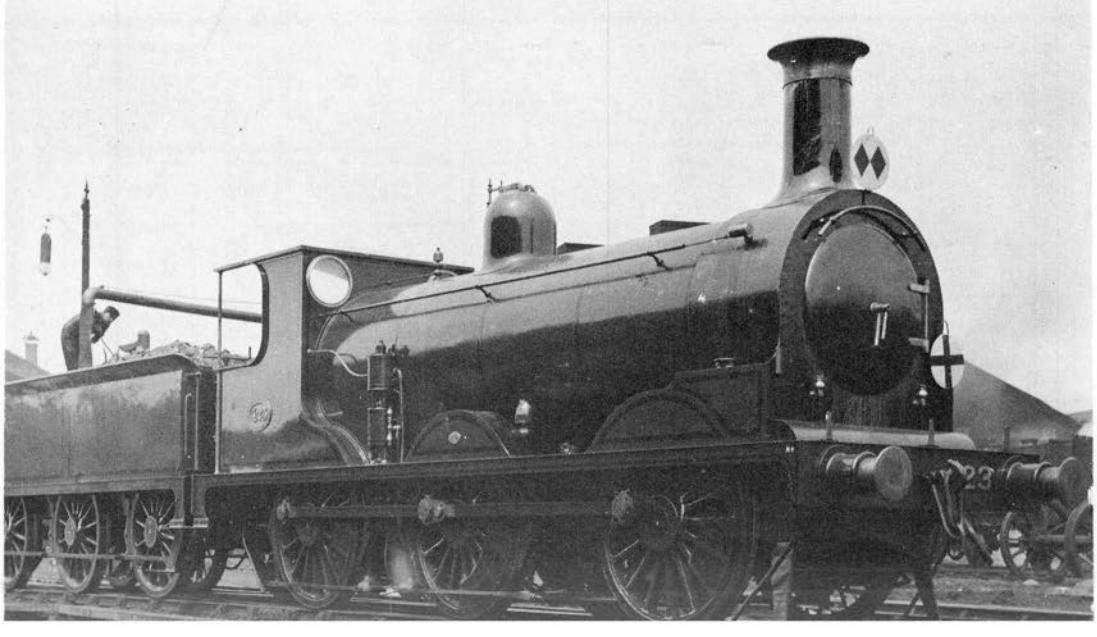


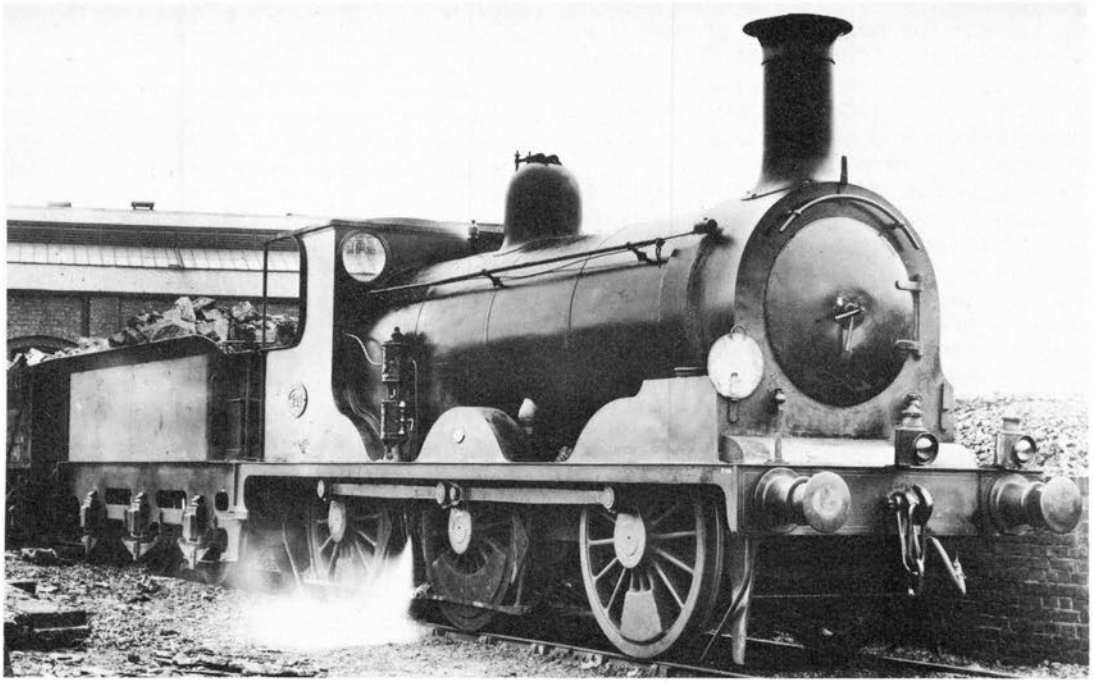
Above:
In the standard Stroudley goods engine dark olive green livery, there were fine red lines added to the black lining bands, to denote that the locomotives were fitted with the Westinghouse air brake for train working. No 431 is illustrated attached to an outside-framed Stroudley tender, with its characteristic underhung springs. All the tenders of the 'C1' class were secondhand, taken from existing Stroudley engines which then received his new inside-framed design in most cases. *LPC*

Below:
Late in its career, (denoted by the Marsh practice of gilt numerals on a plain red bufferbeam), No 423, still however in Stroudley's goods green livery, ran coupled to an inside framed tender, making an attractive ensemble. (Perhaps this tender was the only example to carry the green livery?) Despite its looks in this picture, No 423 was condemned by Marsh in 1908. (Note the fireman busy replenishing the big tender's water supply.) *LPC*

was covered by swapping tenders around as engines entered Brighton works for repairs. Later, No 423 was supplied with a spare inside-framed tender from a passenger engine that was scrapped, and it is possible that this was the only example of its type to be painted in the goods engine green livery.

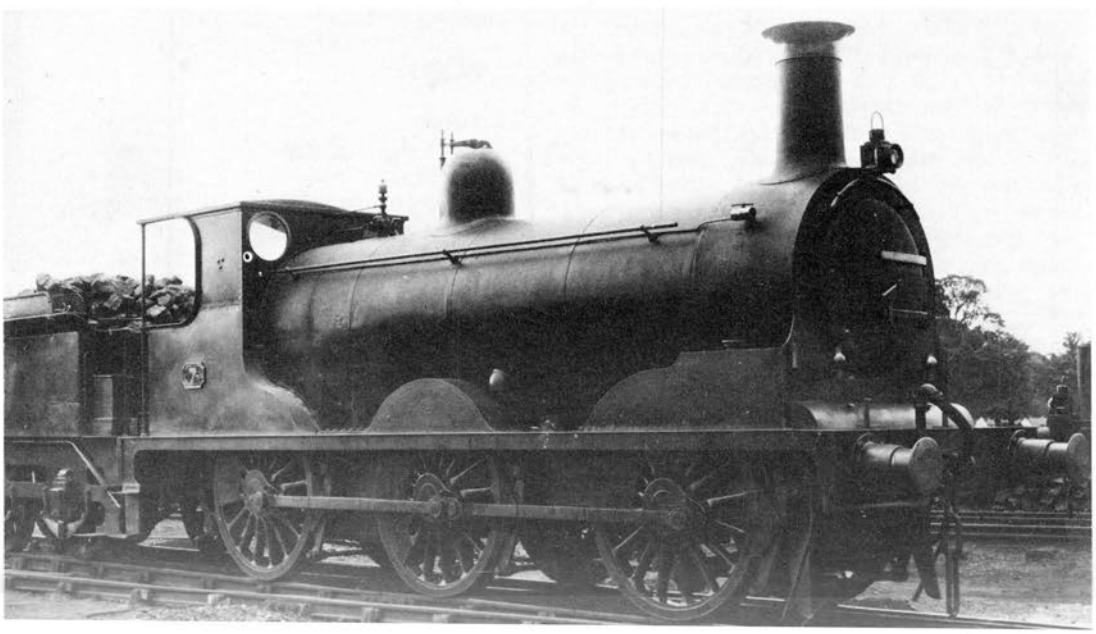
With the green livery, the couplings rods were also painted green except for a bright metal finish close to the coupling rod pin, the reversing rod was finished bright, and on locomotives Nos 421-426 it was placed behind the firebox lagging, until just above the centre driving wheel splasher (these engines had lever-operated reverse); whereas on engines Nos 427-432 (with wheel- and screw-operated reverse), it was outside the lagging. The buffer beams on all of Stroudley's goods locomotives were finished in vermilion red with black and white lining-out, but the buffer sockets were green, with black and red lining; the background to the brass numberplates was sky blue, not dark blue as on the passenger engines. For some reason, Stroudley never





Above:
This picture of Class C1 0-6-0 No 421 (the first of the class, built in 1882), was taken at Fratton in 1901, and the appearance of the locomotive is much the same as when new. Note the heavy balance weights on the coupled wheels, and secondhand outside-framed tender attached, making an interesting comparison with the preceding picture. *O. J. Morris/Bluebell RPS Archives*

Below:
Two examples of the 'C1' class lasted much longer in steam than the others, one was No 430, finally withdrawn in 1924 by the SR, the other was No 428, withdrawn in 1919, when it was sold out of service to the Stratford-on-Avon & Midland Junction Railway. No 428 was first of all repaired at Brighton works, receiving injectors and the vacuum brake, instead of the feed pumps and Westinghouse brake, and it was painted in the SA&MJR colours of crimson lake lined in yellow, and black. New brass numberplates were fitted to the cabsides, as No 7. The outside-framed tender had a raised coping to increase coal capacity, and the LBSCR had already modified the engine's brakes to have one cast iron shoe acting upon the leading side of all coupled wheels. No 7 is seen here when absorbed by the LMSR in 1923, when it became their No 2303, but it never carried the new number, or LMSR Midland red livery, before withdrawal in June 1925. *LPC*



gave names to the 0-6-0 goods locos, although the goods tank engines all received them. Another feature of Stroudley's livery remains to be mentioned; this was the treatment of the tender *top* and the exhaust steam dome that projected from it, in plain red oxide; a sensible treatment against corrosion.

A large portion of the 'Jumbos' working lives was spent in service in the hours of darkness, as the heaviest freight was on the move then, to avoid delays to passenger trains. Some of the class were shedded in the London area, others at Brighton and Fratton. R. J. Billinton provided new fireboxes and cylinders, (actually this was a programme commenced by Stroudley himself in 1888), and these were of similar dimensions to the originals; but he did not consider the class worthy of new boilers. Some thus spent quite lengthy periods stored out of use (perhaps the shortage of tenders was also a problem), because there was an overload of repairs at Brighton, which meant they had to wait their turn. Billinton is said to have wanted to scrap the entire class in the early 1900s, but he was over-ruled and it was not until 1907 that withdrawals commenced, and four were condemned, followed by two more in 1908.

A scheme to improve the condition of five of them in 1909, with improved braking and spare tenders, was not carried out and four more were condemned in 1910/11, which left only two in use; Nos 428/30. These two were destined to have considerably longer lives than rest of the class, and served the LBSCR very well indeed during World War 1. In December 1914, No 430 worked a special Troop train from Brighton right through to Peterborough and perhaps Doncaster on the Great Northern Railway, travelling through London via London Bridge (SECR), Metropolitan Junction, St Pauls, Snow Hill, Farringdon Street and Kings Cross. In 1919 this locomotive received a Marsh pattern cast-iron chimney, and L. B. Billinton placed a coping around the tender top to increase the coal capacity, and he also improved the engine braking. In this form it carried on to give excellent service and was taken over by the SR in 1923; being finally on ballast train work and other engineer's trains. It was withdrawn by the SR in 1924.

The other survivor, No 428 also gave a good account of itself on wartime heavy freight, and it too received the modified brakes after the war. In 1919 it was in the Portsmouth area as a shunting and ballast train loco, when it became surplus to LBSCR needs. It was sold, after an overhaul at Brighton, to the Stratford-on-Avon & Midland Junction Railway in 1920. There it became No 7, complete with vacuum brakes, and was absorbed by the mighty London, Midland & Scottish Railway in 1923, with their No 2303 on the books, although the new number was never carried, because the LMSR withdrew it in 1925, at a time when many interesting oddities were slain by the Derby authorities.

The locomotives were built as follows:

Nos 421-426	Brighton	1882
Nos 427-429	Brighton	1884
Nos 430-432*	Brighton	1887

*(An order for a further 12 locomotives of the class, in 1888, was subsequently cancelled by Stroudley, and a similar number of a new design of 0-6-2T goods engine were meant to replace them. In fact only one was under construction at Brighton at the time of his death, No 158 *West Brighton*; described in Section 15.)

First of class withdrawn: Nos 425/6/9/31 8/1907
Last of class withdrawn: No 430 (SR) 9/1924.
No 428(LMSR) 6/1925
None Preserved

The basic dimensions of the class, as first introduced, were as follows:

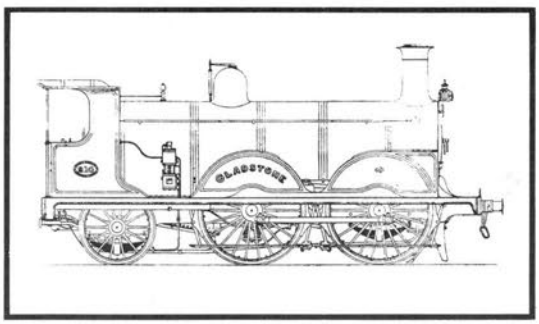
Cylinders:	18¼ in by 26 in
Coupled wheels:	5 ft 0 in
Wheelbase:	7 ft 9 in + 7 ft 6 in = 15 ft 3 in
Boiler diameter:	4 ft 8 in
Boiler length:	10 ft 2 in
Firebox length:	6 ft 8¼ in
Heating surfaces:	
Tubes (317 × 1½ in):	1312 sq ft
Firebox:	101 sq ft
Total:	1413 sq ft
Grate area:	20.9 sq ft
Working pressure:	150lb/sq in
Weight in working order:	
Leading wheels:	13T 14C
Centre wheels:	14T 0C
Trailing wheels:	12T 13C
Engine total:	40T 7C
Tender total:	32T 15C
Engine and tender:	73T 2C

SECTION 13

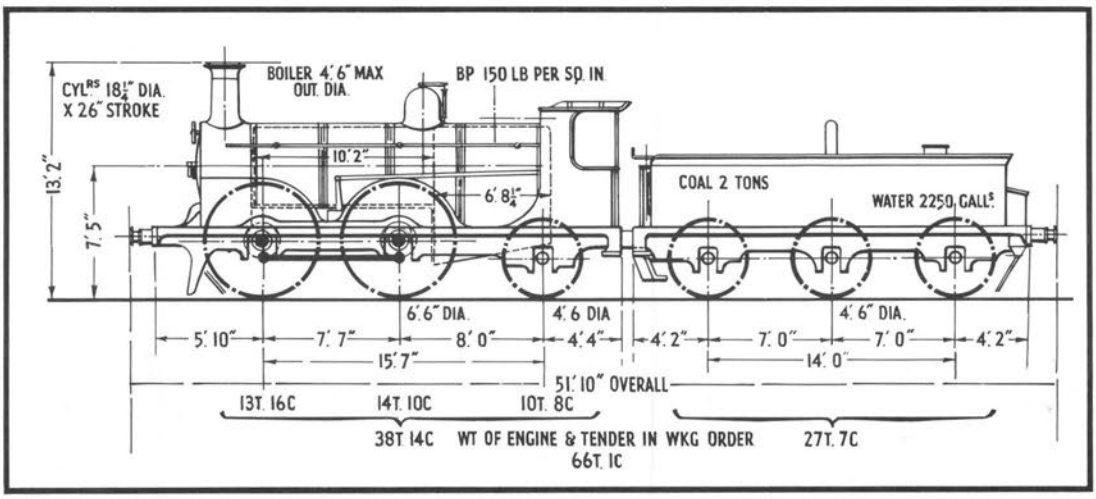
LBSCR Class B, later Class B1
0-4-2 Express Passenger Engines
Introduced: 1884
Total: 36
'Gladstones'

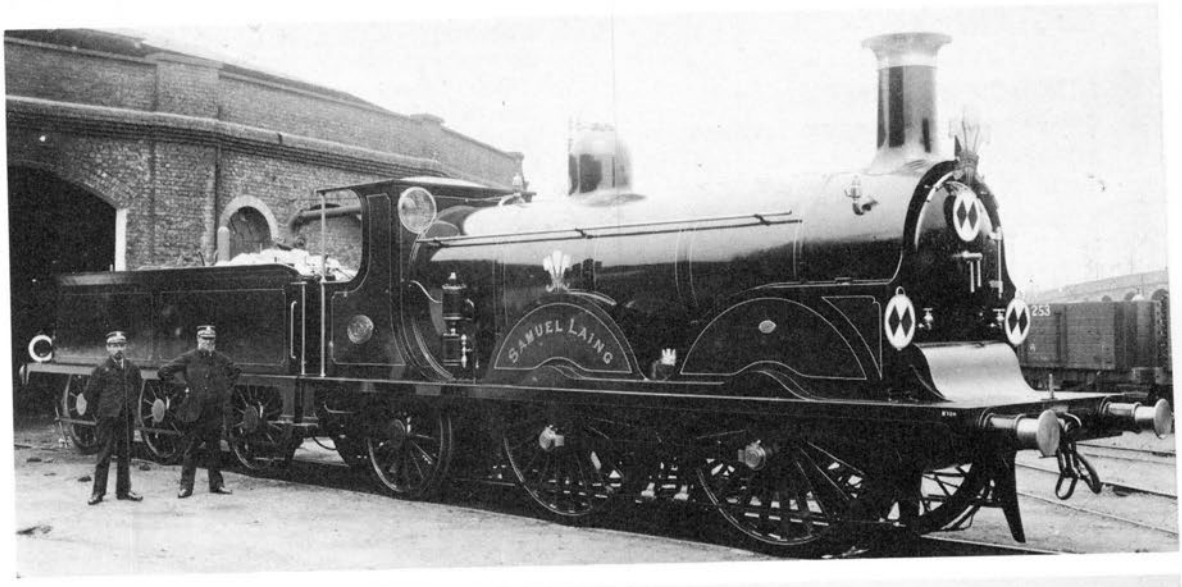
'A special type of locomotive to meet somewhat special requirements.' Thus wrote the late J. N. Maskelyne in 1928 about the 'Gladstone' class, and his appraisal was a just one. The design came about because of the circumstances in which Stroudley found himself when requested to design and build an express passenger engine, able to cope with the heavier loads of the LBSCR in the 1880 period. This had to be able to run over the existing permanent way, and – moreover – to be able to be turned on the existing engine turntables. To solve this equation, he took his 'Richmond' class 0-4-2 wheel arrangement and gave it still larger coupled wheels, and an ample boiler and firebox and good cylinders. Contemporary observers were shocked at the idea, and thought it would lead to catastrophic derailments, as the big wheels rode-up the rails on curves, at speed! However, Stroudley's beliefs was well explained in his own words, reported in the Proceedings of the Institution of Civil Engineers, (the 'Civils') in March 1885, I quote:

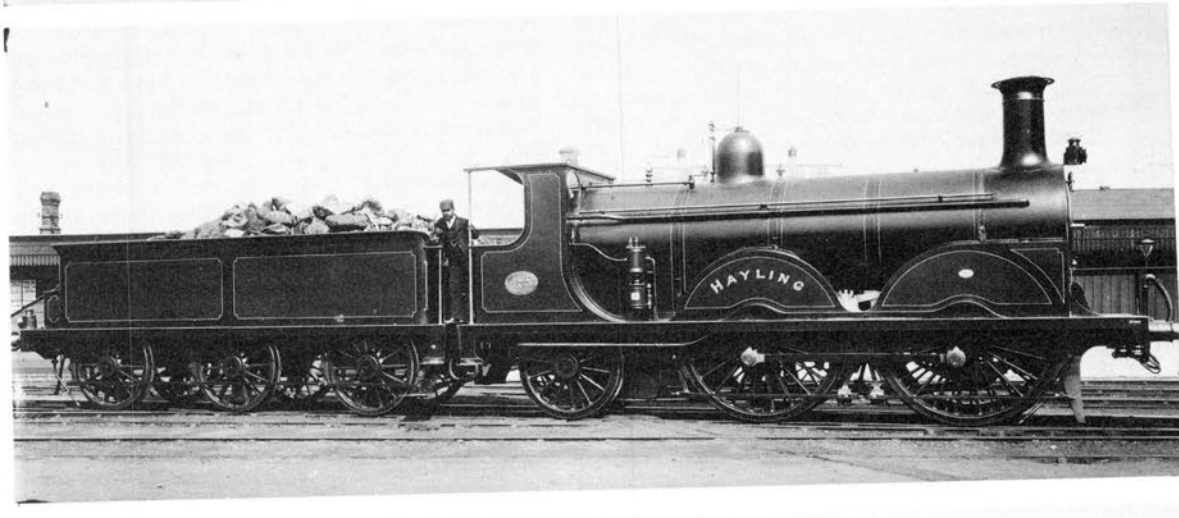
'As to the mode of construction of the engine, he had coupled the two leading wheels and made them of a larger size. His reason was that the heaviest weight of the engine naturally went to the front where the cylinders and gearing produced a greater weight on the leading axle than the firebox did upon the trailing axle. He also wished to avoid the complication of a bogie. One of the objections to a bogie on an old line like the Brighton would be that all the turntables would be useless. They would have to be remodelled, and in some confined places it would be impossible without great expense to alter the arrangements. At Victoria, for example, an engine could not be turned without breaking down buildings, which would be very costly. Again he found that he could make a lighter engine, and he was satisfied that on a well-constructed line, like the Brighton, the difference in the level of the rails on the length of an engine was not sufficient to warrant the introduction of a bogie. It had been stated that a large leading wheel would leave the rail more



Left:
The drawing depicts No 214 *Gladstone* of William Stroudley's famous 'Gladstone' class express passenger 0-4-2 design, introduced in 1882; his final essay for express passenger train working on the LBSCR system.




SAMUEL LAING


HAYLING

SALISBURY

Left:
Decorated with 'Prince of Wales feathers' and special headcode 'Gladstone' class 0-4-2 No 199 *Samuel Laing*, with posed crew, has evidently been prepared for a Royal train duty; note the whitewashed coal in the tender. The thin copper pipe for the leading tyre-cleaning jet can be seen wrapped along the sandpipes ahead of the front coupled wheels. *LPC*

Below left:
Carefully posed for the camera in the yard at New Cross Gate, 'Gladstone' class 0-4-2 No 175 *Hayling* shows the lovely lines of the 'Gladstone' design, with its huge but shapely leading splasher and sandbox combined, and the generously proportioned copper-capped chimney. This particular engine was dual-braked, and the extra pipework involved for the vacuum brake and the front standpipe, are well illustrated. Note the really huge lumps of coal heaped on the tender – quite a task for the fireman to break-up during the journey to come! *LPC*

Bottom left:
Here again, judging by the size of the lumps of coal visible in the tender of No 215 *Salisbury*, the fireman was going to be kept busy breaking it up into more useful pieces. The lack of any coal rails, or side copings, was a weak feature of the final inside-framed Stroudley tender design, and caused a lot of wastage by spillage. No 215 *Salisbury* was the first of the 'Gladstone' class to be withdrawn, in April 1910; with a mileage of 909,132 achieved since construction. *LPC*

readily than a smaller wheel. If a large wheel was placed against a rail on a curve, it would be found that the flange of the wheel which was on the outside of the curve would come into contact with the rail at a distance in advance of the point of tread, in proportion to the radius of the wheel. It would therefore take a considerably greater effort to lift a large wheel over the rail than would be required in the case of a small one. This arrangement had been adopted for some years, and had given the greatest possible satisfaction. Large leading wheels had been used elsewhere, but not so large, he thought, as those which he had made, viz., 6ft 6in in diameter. There was a uniform weight on the leading and driving wheels, and the total weight of the engine was only 38 tons 14cwt, although the boiler had 1,500sq ft of heating surface. Being able to concentrate so much power with so little material was a great temptation to make the engine in that way instead of in the ordinary type.'

The first of the class, No 214 *Gladstone* ran for nearly 12 months in everyday use before the second was put to work, and very careful attention was paid to the tyre profiles of the leading coupled wheels and the trailing wheels under the cab; until Stroudley was completely satisfied. The coupled wheel tyres were made of harder steel than normal and much care was taken over the balancing of the driving wheels. It is recorded that the 'Gladstones' tended to hit curves and crossings rather harder than most LBSCR engines; but no derailment or accident was ever to be attributed to their unusual wheel arrangement, throughout their long careers. Perhaps the big inside-framed tender, with its carrying wheels of the same diameter as the trailing carrying wheels on the engine, was something of a steadying influence.

Externally the 'Gladstones' were entirely in the, by then famous, Stroudley style complete with his golden ochre livery. The general layout, and boiler design followed his established practice and the boiler was an excellent steamer, probably due to the large firebox made possible by the fact that the coupled wheels were placed at the front of the engine. On *Gladstone*, alone of the class, the front edge of the cab followed the curve of the trailing wheel at the bottom, (a 'reverse curve', also applied to the 'Single' *Grosvenor*), whereas on all subsequent engines of the class it terminated as one large radius. All the engines were built new with the Westinghouse brake, but several were later dual-fitted with the vacuum brake for through carriage workings coming off other railways. Steam heating also made its appearance on the class, once carriages began to be suitably equipped. One interesting 'through' working was recorded with No 186 *De La Warr* which, sometime around the turn of the century, hauled a special train throughout from Brighton to Birmingham, *via* Kensington Addison Road. What a stir the arrival of the 'Gladstone' must have created at Birmingham, in its glowing colours!

The cylinders, cast in one piece, were based upon those of the 'Jumbos', the class 'C1' 0-6-0s to provide plenty of power at the front end, but the boiler was a distinct improvement. Screw and wheel reversing was fitted, with the added refinement of air assistance. The cab layout was very good indeed for its time and was much appreciated by the enginemen. It was equipped with Stroudley's own patent speed indicator, and with twin water gauges (lamplit at night), and with the LBSCR electric passenger alarm communication.

Once the initial trials and tribulations were successfully overcome, Stroudley was well-pleased with his new express passenger engine design, and further orders for the class were placed, including more in 1889/90. Of

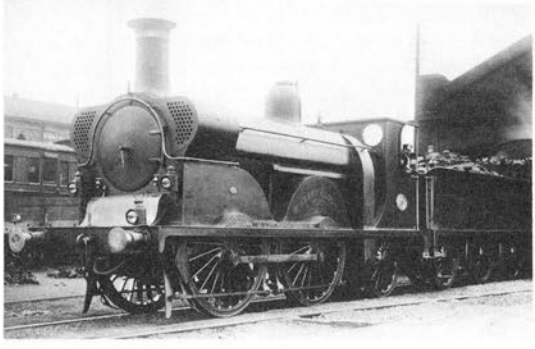
these, No 189 *Edward Blount*, (named after the then Chairman of the Western Railway of France), was given a special finish and shipped to France for display at the 1889 Paris Exhibition; the second Stroudley engine to be sent. (See also Section 4.) It gained a gold medal, but a Midland Railway Johnson 'Single' gained the highest award. Arrangements were made for No 189 *Edward Blount*, and another English gold medallist – South Eastern Railway 'F' class 4-4-0 No 240 *Onward* – to be tested on the Paris, Lyons & Mediterranean Railway for a couple of weeks, with a series of high speed, and heavy haulage, tests. In the course of these trials William Stroudley contracted the chill which led to his death in Paris in 1889.

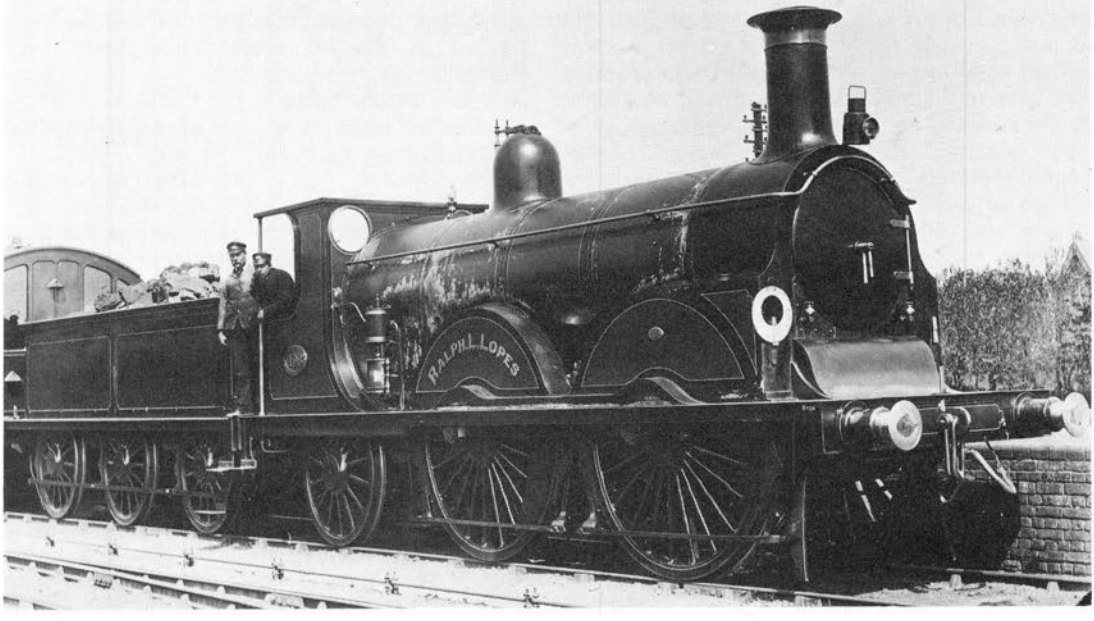
After Stroudley's death, the 'Gladstones' were added to in number with another six built by R. J. Billinton because of a severe shortage of express passenger power, and were still considered top link passenger engines even when Billinton had his own bogie 4-4-0 design ready as a replacement. All told, 36 of the 'Gladstone' class was built over the period 1882-1891, and they ran all the best services, and undoubtedly gave the LBSCR great service until the coming of the later, larger Billinton 4-4-0s, and later still the Marsh 'Atlantics'. The last two 'Gladstones' built by Billinton had a number of modifications made, and were somewhat delayed in construction as a result; with one of these final two, No 172 *Littlehampton* being fitted with Gresham & Craven combination injectors instead of the Stroudley feedwater heating system and feed pumps.

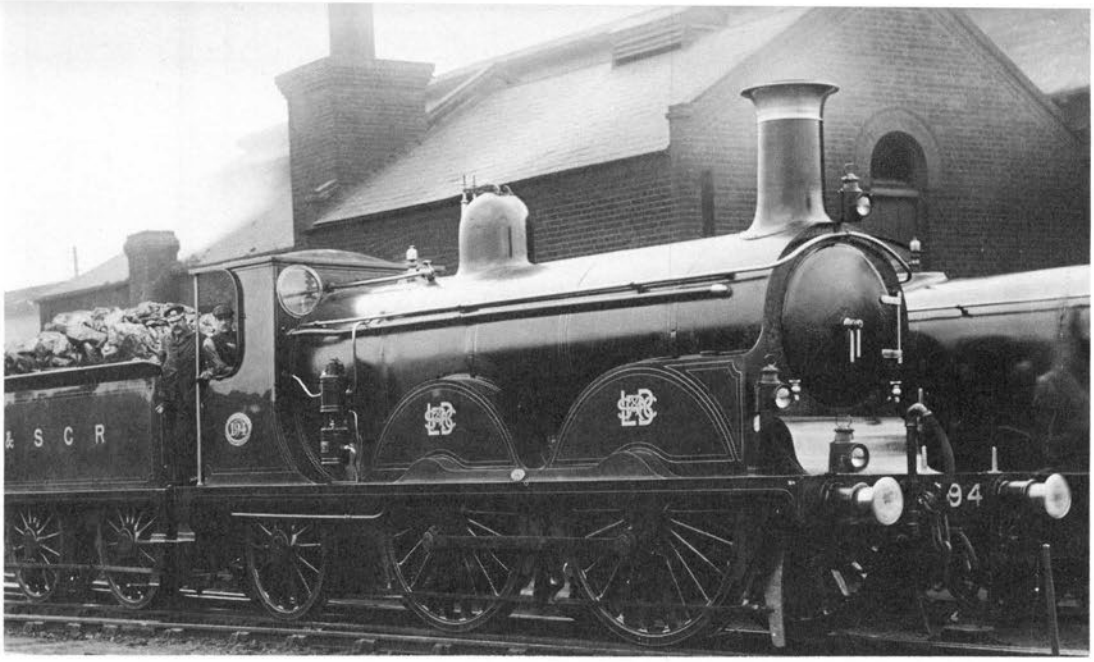
As a result of Stroudley's unique and inspired design, the LBSCR had been well supplied with express passenger power until

Below:
'Gladstone' class 0-4-2 No 189 *Edward Blount* was the engine sent to the 1889 Paris Exhibition, and the fact that it won a gold medal whilst there, was afterwards painted on the splasher, beneath the name. In 1907 it was chosen by Marsh for a series of trials with Hammond's Patent Air-heating apparatus, and it is seen here with this curious arrangement. The original Stroudley chimney was still carried, despite the modification to the smokebox. *Bluebell RPS Archives*

Bottom:
The continuous handrail fitted by R. J. Billinton is well seen in this picture of No 196 *Ralph L. Lopes* taken around the early 1900s. The golden ochre livery has suffered somewhat from the ravages of time and weather, but is still beautifully polished! *LPC*





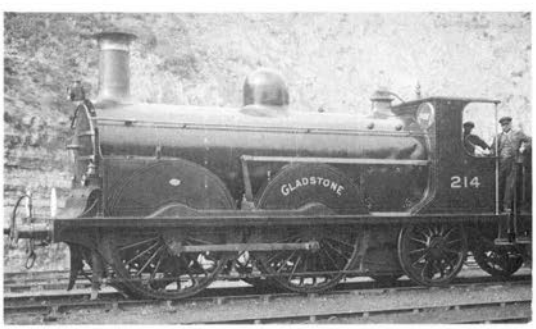


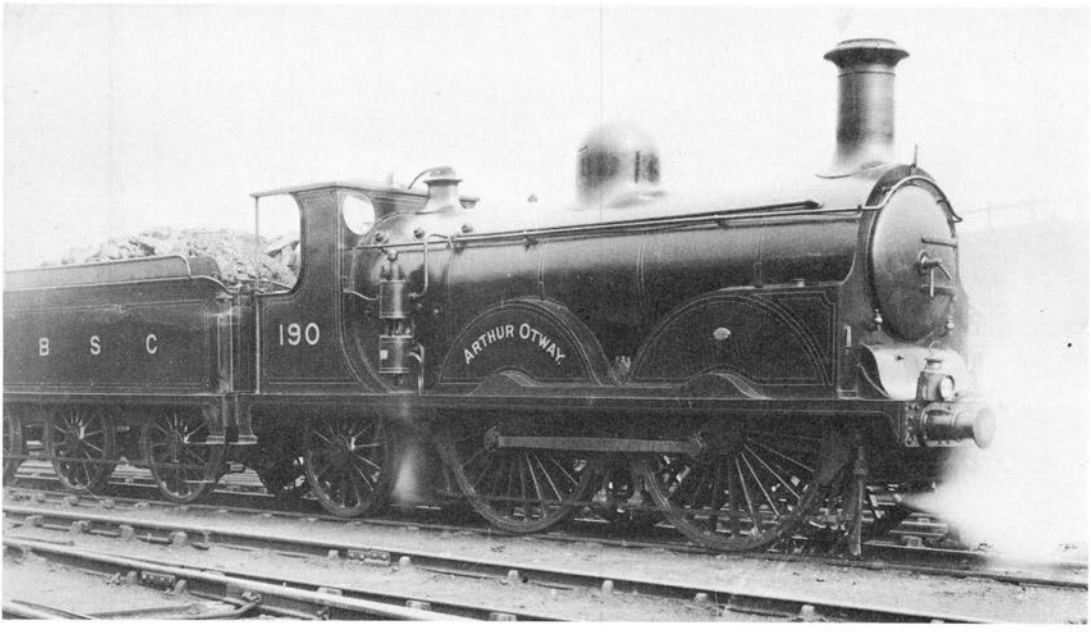
the turn of the century, by which time some replacement boilers were becoming necessary. Billinton organised these and at this time he also replaced the original short, separate handrail arrangement with his own continuous handrail; for safety reasons. An abortive attempt to burn oil fuel instead of coal was made by the LBSCR in 1902-4, and two 'Gladstones' were so fitted: Nos 186 *De La Warr* and 198 *Sheffield*, both being altered back to coal burners in 1904 – much to everyone's apparent relief!

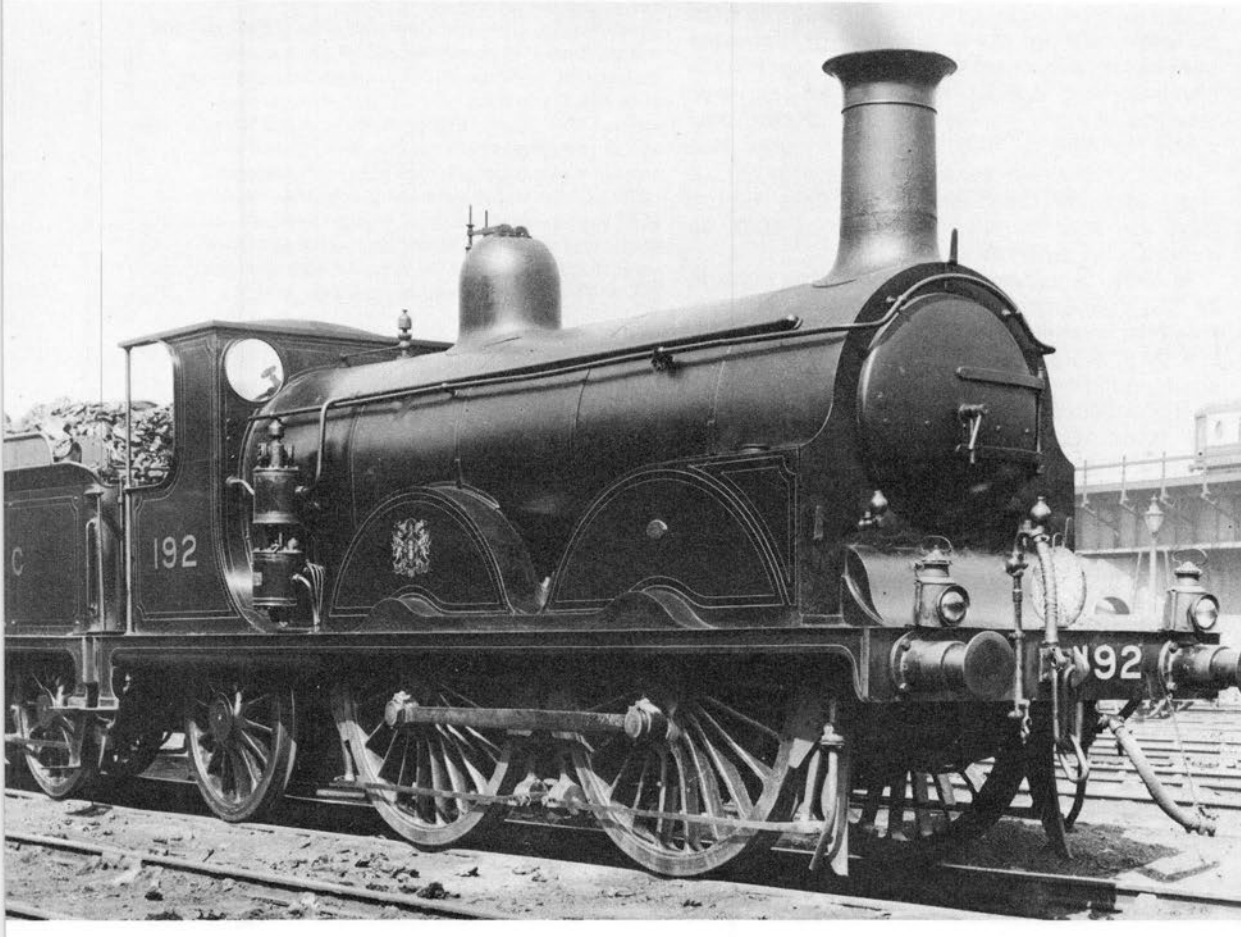
In 1906, D. E. Marsh thought highly enough of the 'Gladstones' to decide to give the majority of them new boilers, conforming to his own design, complete with a large plain dome, and Ramsbottom safety valves over the firebox; the whistle being resited on the roof at the front of the cab. He also bestowed his umber brown livery, and except for a few special cases the locomotive names were removed. Those which retained their names (for reasons not absolutely clear), were Nos 173 *Cottesloe*; 190 *Arthur Otway*; 199 *Samuel Laing* and – wisely – No 214 *Gladstone*. In addition No 184 *Carew D. Gilbert* was renamed *Stroudley* by Marsh; a nice sign of respect for the man and his locomotives. At first the Marsh rebuilds retained the original Stroudley copper-capped chimney, but in due course most of them had to be replaced by Marsh's own chimney design, in cast iron. There were still some Stroudley-type boilers carried at the time of the Grouping in 1923, although with Marsh chimneys except for Nos 190 and 200. The tender design was also modified, by L. B. Billinton who added a coping to the coal space

Above:
Opinions differed as to the effect of the Marsh umber brown livery upon the big forms of the 'Gladstones', and it was certainly a pity that at the same time most of them lost their names. Nevertheless this study of No 194 (formerly *Bickersteth*), repainted in umber brown is certainly very attractive, in particular with the two monograms of the initials LB&SCR, one upon each driving wheel splasher. This was an early experiment, keeping the Stroudley-style cabside numberplates, and with the tender lettered LB&SCR; later on painted numbers and the simple legend LBSC were adopted instead. The locomotive still carries a Stroudley-type boiler and chimney, and is fitted for the vacuum brake as well as the Westinghouse air brake. Billinton's continuous handrailing fitted. *LPC*

Below:
No 214 *Gladstone* was one of the fortunate few that still carried its name when repainted in umber brown. The cabside numberplates have been replaced by painted numerals, and the engine carries a Marsh boiler, with closed dome and Ramsbottom safety valves over the firebox, in a flared casing. The whistle had to be resited upon the cab roof. Note the reverse curve to the trailing wheel splasher where it joins the cab; only No 214 had this feature, (compare with next picture). *LPC*




B S C
190
ARTHUR OTWAY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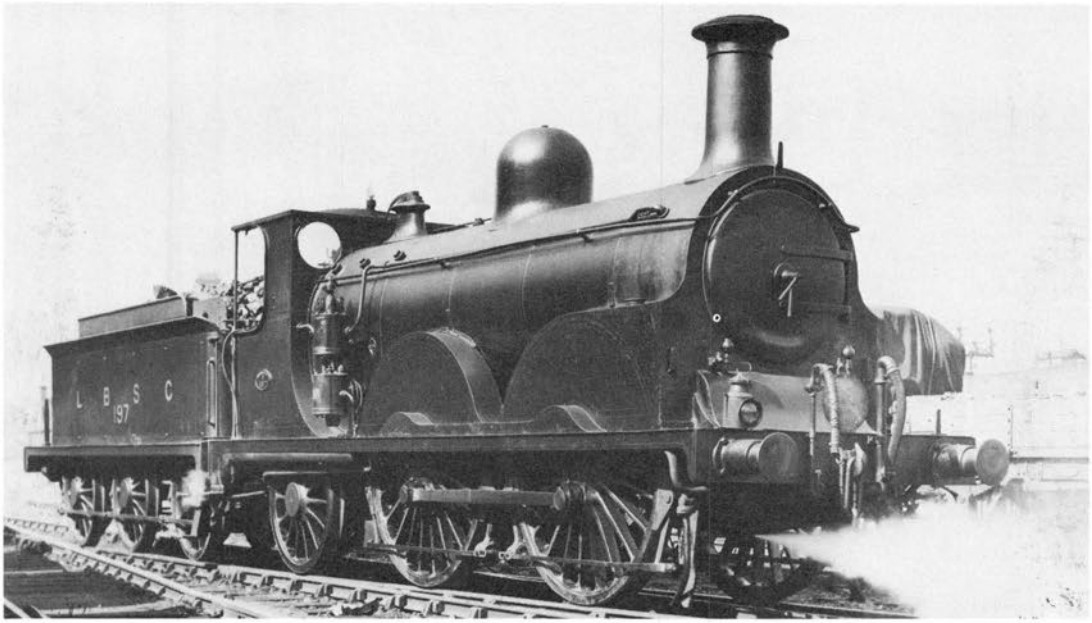


Above left:
Another of the named 'Gladstones' is seen here when fitted with a Marsh cast iron chimney, and Marsh boiler. No 190 *Arthur Otway* also shows the tender coping added by Lawson Billinton in later LBSCR days. The simplified treatment of the cab front and rear trailing wheel splasher is clearly visible compared to the original design. Standard umber brown livery with painted name and numbers, and initials LBSC on the tender. Larger Westinghouse pump fitted. *P. F. Winding collection*

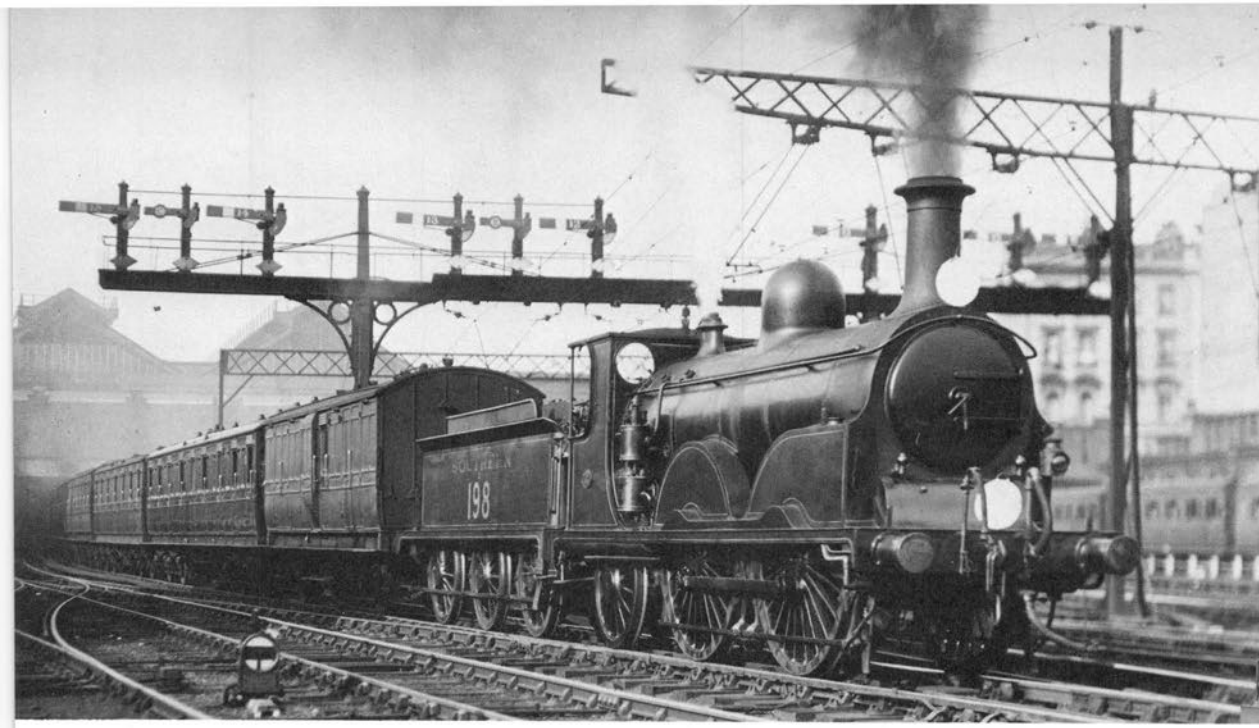
Left:
Photographed on 17 May 1924 at the same location – Battersea shed – as the previous picture, No 192 makes an interesting comparison; still carrying a Stroudley chimney and an R. J. Billinton-era boiler. The Stroudley styling still predominates because of the chimney, despite all the latter-day alterations, and it certainly has an elegance about it that the Marsh boilers and chimneys could not equal. No 192 no longer has its old name *Jacomb Hood* painted upon the rear coupled wheel splasher, but sports the distinctive LBSCR coat-of-arms in its place. An interesting feature of these engines was that they never carried a screw-link coupling at the front end; always a plain three link coupling with the centre link shorter than the other two.
H. C. Casserley

Above:
Battersea shed is once again the location – but this time in May 1927, four years and five months after the Grouping, and old No 197 still carries the hard-wearing Marsh umber brown livery! In fact the SR have given her their small oval standard numberplate on the cabside, but the tender is still proudly lettered LBSC, and the engine number has been added – SR style – below the former owner's initials. An act of defiance on someone's part perhaps; or just a simple act of economy! *H. C. Casserley*

and a well tank underneath; to enlarge the coal and water capacity.

An interesting experiment in 1908 was applied to No 189 *Edward Blount*, the Paris gold medallist, which was fitted with Hammond's patent Air-heating apparatus, which was supposed to supply heated air for combustion in the firebox. The apparatus gave a most peculiar look to the locomotive front end, (see illustration on page 106), and does not appear to have achieved any very outstanding results; although the engine carried it until being scrapped in 1912. (Withdrawals of the 'Gladstone' class having commenced in 1910; with ten gone by the time of the Grouping.)

During the Lawson Billinton régime at Brighton, the surviving 'Gladstones' were still well cared for, but they were increasingly relegated to lesser duties, while their Marsh boilers still gave excellent service. During World War 1 the class had proved very useful, but by the time of the return to peace they were to be found on semi-fast duties rather than the expresses, and now undertook some goods workings; sometimes as a pilot engine to a Billinton 0-6-0 goods engine. The Southern Railway, under R. E. L. Maunsell's guidance decided to withdraw the remaining 'Gladstones' gradually, as they had something of a surplus of engines for relatively light duties, and there was in particular a large number of former SECR 4-4-0s available. Happily, No 214 *Gladstone* was rescued for private preservation in 1927, and this survives to this day to



Above:
A truly classic railway photograph. The swansong of Stroudley's 'Gladstones' is epitomised in this lovely study of No 198 leaving Victoria in fine style. The engine carries Maunsell's passenger green livery, and it is complete with all the latter-day Billinton and Marsh alterations. It still presents a very striking appearance indeed – Stroudley would have been proud of her!
Ian Allan Library/Real Photographs collection

show us something of William Stroudley's true creative genius. (See Appendix 1.)

The class did not die with the preservation of *Gladstone* however, and in 1928-30 some of the survivors were still being repaired, at Ashford and Brighton; although others went for scrap in the same period. By the second half of 1931 only two survived in steam, Nos 172 (latterly fitted with an Ashford-type injector), and 197. These gallantly soldiered on until 1933 and 1932 respectively, and had a considerable 'following' amongst the railway enthusiasts of their day.

The locomotives were built as follows:

Nos 214-219	Brighton	1883/5
Nos 190-200, 220	Brighton	1887/8
Nos 178-189	Brighton	1889/90
Nos 172-177	Brighton	1890/1

First of class withdrawn: No 215 4/1910
Last of class withdrawn: No 172 9/1933
Example preserved: No 214 *Gladstone*

The basic dimensions of the class, as first introduced, were as follows:

Cylinders:	18¼ in by 26 in
Coupled wheels:	6 ft 6 in
Trailing wheels:	4 ft 6 in
Wheelbase:	7 ft 7 in + 8 ft 0 in = 15 ft 7 in
Boiler diameter:	4 ft 6 in
Boiler length:	10 ft 2 in
Firebox length:	6 ft 8¼ in
Boiler pitch:	7 ft 5 in
Heating surfaces:	
Tubes (333 × 1½ in):	1,378¼ sq ft
Firebox:	114 sq ft
Total:	1,492¼ sq ft
Grate area:	20.3 sq ft
Working pressure:	140lb/sq in (later 150lb/sq in)
Weight in working order:	
Leading coupled wheels:	13T 16C
Trailing coupled wheels:	14T 10C
Trailing wheels:	10T 8C
Engine total:	38T 14C
Tender (2,238gal)	27T 7C
Engine and tender:	65T 1C

SECTION 14

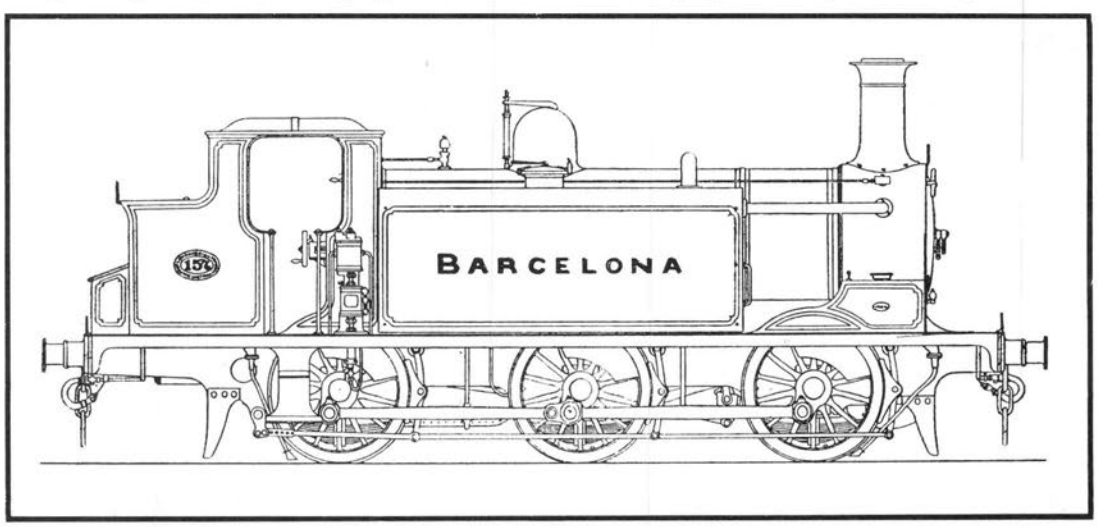
LBSCR Class E (special) later Class E2, E1
0-6-0T Goods Tank Engine (special duties)
Introduced: 1884
Total: 1
Barcelona

This locomotive was Stroudley's specific answer to a specific need. He took his Standard Class E (later E1) 0-6-0T design and modified it and enlarged it, giving it a larger boiler and his standard 18¼in by 26in cylinders. The locomotive was required, (only *one*), for the Eastbourne-Tunbridge Wells line (the 'Cuckoo' line), which had opened throughout in 1880, and which by 1883 was experiencing a growth of traffic, and weight of payload which was pushing to the limits the capacity of the existing power, which was a mixture of 'D-Tanks', old Craven engines and Class E1 0-6-0Ts; due to the steep gradients and the sharp curvature of the route. Bad weather conditions caused problems with wheelslip and late running and a heavier and more powerful locomotive was required. The cost of a completely new design could not be justified, and the 'enlarged E-tank' was an excellent compromise, utilising the same frame and wheel design but with a larger boiler, heightened side tanks and enlarged coal bunker.

The boiler was of the same dimensions as those of the standard 'G' class 'Singles' except that the length of the firebox had to be restricted to the 'E-tank' wheelbase; nevertheless proving adequate in everyday service. The front-end arrangement was similar to that of the 'Gladstones', with the cylinders and steam chests cast in one piece and with the valves underneath. Whereas the standard 'E-tanks' had lever reverse, No 157 *Barcelona* (which was classified 'E-special' by Stroudley) had a wheel and screw reverse fitted; air assisted. The boiler feed was from both the usual cross-head pump arrangement and by a Duplex pump working off the Westinghouse brake pump air cylinder. The locomotive was Westinghouse-fitted because of its envisaged use on goods trains, and a larger-than-normal sand capacity was provided as a precaution against wheelslip on the steep gradients, and sharp curves, of the route.

No 157 *Barcelona* was a very powerful-looking engine, and it must have created a stir when it first appeared on the 'Cuckoo' line; resplendent in golden ochre passenger livery. R. J. Billinton changed the livery to goods green in 1890; a more appropriate colour for the engine in view of its regular employment on goods trains. It seems to have performed its duties well, apart from occasional problems with slipping (as a result of which extra sand was carried, stored on the footplate), and it was not until 1896 that any change was made to No 157's pattern of life. In that year it

Below:
The drawing depicts the unique class 'E-special' 0-6-0T No 157 *Barcelona*, built specially in 1884 for use on the 'Cuckoo' line, between Eastbourne and Tunbridge Wells. Note the larger leading sandboxes; no handrail on boiler side, and larger side tanks than on the standard 'E-tank'. Westinghouse brake fitted, with cast iron brake shoes acting on the leading edge of the coupled wheels only.



required overhaul at Brighton works, and a Billinton Class E3 0-6-2T was sent to take over its duties meanwhile. The 'Radial' seems to have performed well enough, and *Barcelona* was assisted by it when it returned from Brighton, with the 0-6-2T handling the daily down goods working and *Barcelona* working the up train each day. When No 157 *Barcelona* required new cylinders, it was again replaced by an 0-6-2T, whilst in Brighton works in 1902.

The boiler, despite overhaul and retubing in 1912, and further repair in 1916, was to prove the 'Achilles heel' of No 157, and by 1921 it was reaching the end of its life. With the pressure reduced to 120lb/sq in the big tank engine was sent to East Croydon for humble station pilot duties; (shedded at Coulsdon). The end for No 157 came the following year, when the firebox was no longer safe, and it was not considered worth the expense of fitting a new one. Although being a 'one-off' type, No 157 had performed its day-to-day role exactly as Stroudley had intended, and it ended its days very little altered, except by the Marsh livery changes, and the replacement of the Stroudley chimney by a Marsh cast iron one. It was finally scrapped by the SR in 1923; having been withdrawn by the LBSCR the previous year.

Below:
Although originally painted in the golden ochre passenger livery, Stroudley's 'E-special' 0-6-0T No 157 *Barcelona* was in reality rather more useful as a good engine than as a passenger engine, and in due course it received the standard dark olive green, with black bands and fine red lining-out. This study, taken at Eastbourne, shows well the very large side tanks, with condensing pipes and the lack of a boiler handrail, but with a small handrail added to tank front; also the extra large sandboxes at the front end. *LPC*

The locomotive was built as follows:

No 157	Brighton	1884

Withdrawn: 6/1922
Not preserved

The basic dimensions of the engine, as first introduced, were as follows:

Cylinders:	18¼ in by 26 in
Coupled wheels:	4 ft 6 in
Wheelbase:	7 ft 6 in + 7 ft 9 in = 15 ft 3 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 2¼ in
Boiler pitch:	7 ft 3 in
Heating surfaces:	
Tubes (262 × 1½ in):	1,084½ sq ft
Firebox:	87 sq ft
Total:	1,171½ sq ft
Grate area:	15½ sq ft
Working pressure:	150lb/sq in
Weight in working order:	
Leading coupled wheels:	14T 1C
Centre coupled wheels:	15T 9C
Trailing coupled wheels:	14T 8C
Total:	43T 18C
Water and fuel capacities:	1,052gal and 2¼ ton

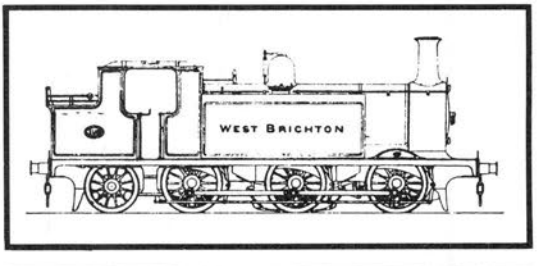
SECTION 15

LBSCR class F, later Class E3
0-6-2T. Local Goods and Heavy Shunting Engine
Introduced: 1891
Total: 1
West Brighton

This locomotive design was in preparation when Stroudley died in France, and what eventually emerged from Brighton works in 1891 was somewhat altered in detail by his successor, R. J. Billinton. Nevertheless, the original conception – a larger locomotive to replace the Class E1 0-6-0Ts on local goods and heavy shunting duties – was Stroudley's own, and it showed his realisation by 1889, that larger and more powerful types of locomotive were becoming necessary on the LBSCR.

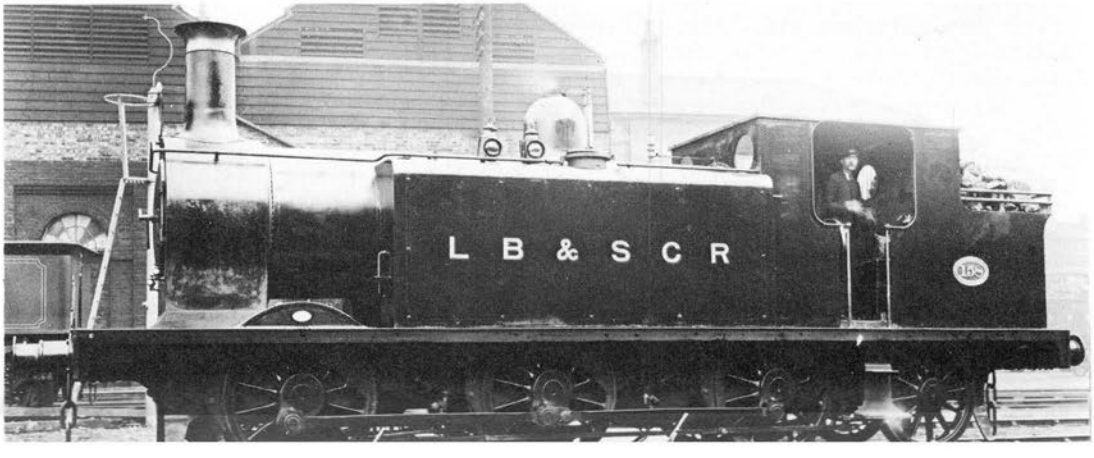
The main alterations made by Billinton were to the boiler and the coal bunker, and the Stroudley features that were retained were the cab design, (with a roof ventilator added), the side tanks, wheels and frames, etc. Although Stroudley included a Westinghouse brake in his original drawings, this was not fitted and steam braking for the engine only was used instead. Also changed was the boiler feed system, with Gresham & Craven combination injectors and cold feed. The handsome copper-capped chimney that was Stroudley's personal 'signature' was replaced by a very shapely castiron design obviously copied from Derby practice. The leading splashers did not have the typical Stroudley sandboxes, and were made in one piece of cast iron. Sanding was steam-operated from boxes located below the running plate.

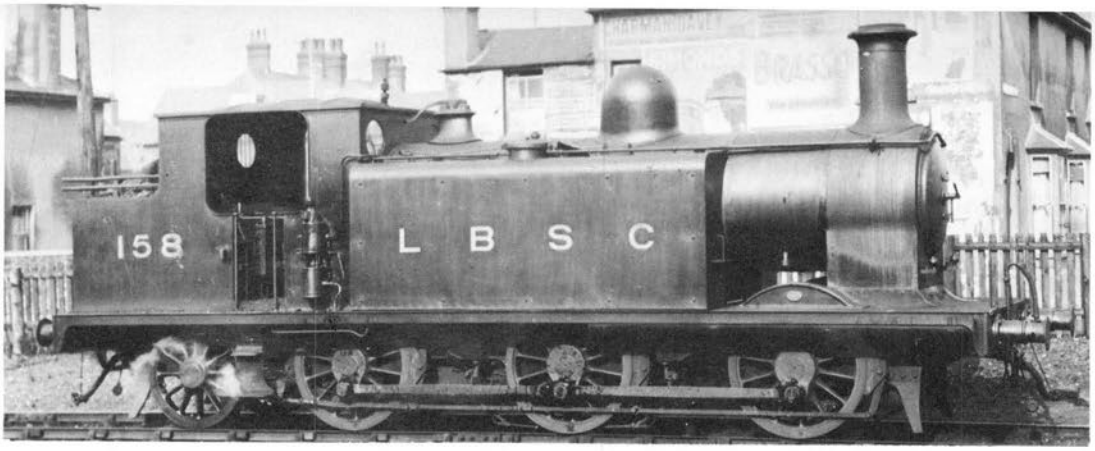
The big 'Radial tank' was given the No 158 *West Brighton* and was classified as 'F' in the Stroudley system. It commenced service on the coastal goods and van trains between Portsmouth and Brighton, where some trouble with poor steaming led to modifications. Apparently R. J. Billinton was well satisfied with the design, because 16 basically similar engines were built in 1894–5. These are outside the scope of our present story; suffice to say that Billinton went on to produce a whole series of splendid 0-6-2T designs, which may be described as developments of the



Below left:
Class F 0-6-2T radial goods engine No 158 *West Brighton*, designed by William Stroudley in 1889 and built posthumously by R. J. Billinton in 1891. Changes made by Billinton, to the original design, are shown in this drawing; in particular the Derby-style cast iron tapered chimney, and the longer bunker (with the toolbox resited inside the cab) to allow greater coal and water capacity; complete with coal rails. No Westinghouse brake fitted, and steam braking for engine, using all three coupled wheels; plain three link couplings. Originally painted in Stroudley's goods engine green livery.

Below:
By the time this photograph was taken c 1909/10, No 158 was carrying the Marsh goods engine black livery, with very fine red lining-out, and had lost its name from the tanksides in favour of the initials LB&SCR. It was otherwise little changed except for the chimney, which somewhat remarkably was of Stroudley's copper-cap type – thereby producing the appearance the great man had originally planned! The engine was still without the Westinghouse brake. *LPC*





Above:
No 158 at last received the Westinghouse brake in 1912, at a time when it was employed on some local passenger train duties, based at St Leonard's shed; screw-link couplings also being fitted. In 1921 a 'new' boiler was necessary and L. B. Billinton found the solution by using a 1908 Marsh boiler with suitable repairs and modifications including a new firebox and smokebox. A cast-iron Marsh pattern chimney was carried and the whistle was placed upon the cab roof. It survived in service until September 1934. *LPC*

Stroudley original. In due course the Billinton chimney on No 158 *West Brighton* was replaced by one of Stroudley pattern during a visit to the works. By 1906 the boiler was a cause for concern, and the big tank was stored at Horsted Keynes until D. E. Marsh took it into Brighton works for repairs, from where it emerged in 1909, in black livery and nameless. In 1912 the Westinghouse brake was fitted to allow its use on passenger trains. The boiler was finally worn-out and condemned in 1921, and Lawson Billinton, who had succeeded D. E. Marsh at Brighton in 1911, then sought a replacement boiler and chose a 1908 Marsh boiler. A new smokebox with a Marsh castiron chimney was carried and it is stated that the umber brown livery was carried. (The illustration above shows it to be still in black however.)

After the Grouping No B158, (by then considered as a member of the Billinton 'E3' class, making 17 in all), was painted in the black SR goods engine livery, with green lining-out, and in common with most surviving ex LBSCR locomotives it was fitted with the vacuum brake to extend its usefulness on the SR system. It spent the early Grouping years in the Brighton area, shunting, and was also at Lewes and Newhaven. The engine ended its days in the Brighton area, and at Eastbourne, until worn out when it was sent to Ashford works for breaking-up in September 1934.

The locomotive was built as follows:
No 158 Brighton 1891
Withdrawn: 9/1934
Not preserved

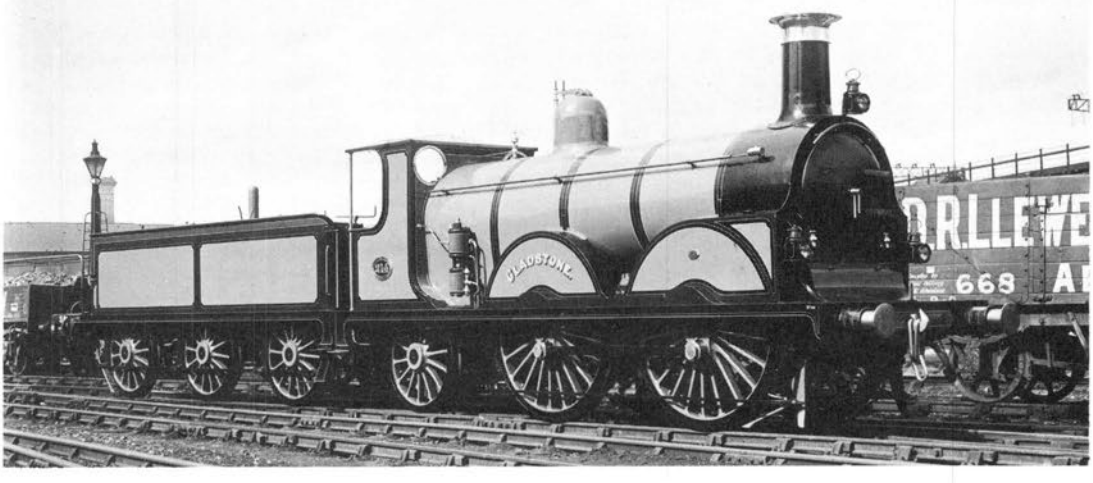
The basic dimensions of the engine, as first introduced, were as follows:

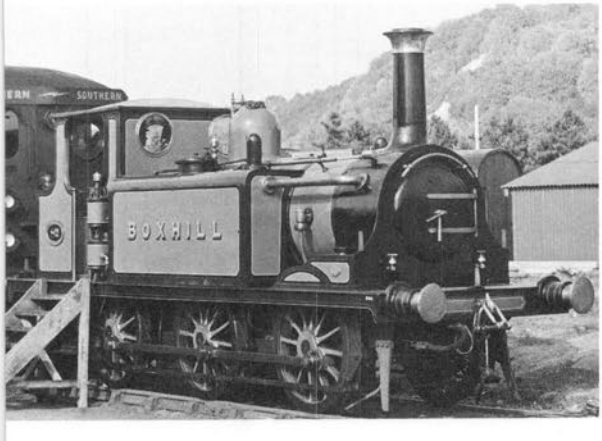
Cylinders:	18¼ in by 26 in
Coupled wheels:	4 ft 6 in
Radial wheels:	4 ft 0 in
Wheelbase:	7 ft 6 in + 7 ft 9 in + 6 ft 0 in = 21 ft 3 in
Boiler diameter:	4 ft 3 in
Boiler length:	10 ft 2 in
Firebox length:	5 ft 8¼ in
Boiler pitch:	7 ft 4¼ in
Heating surfaces:	
Tubes (262 by 1½ in):	1,080 sq ft
Firebox:	96 sq ft
Total:	1,176 sq ft
Grate area:	17 sq ft
Working pressure:	150lb/sq in
Weight in working order:	
Leading coupled wheels:	16T 0C
Centre coupled wheels:	15T 10C
Trailing coupled wheels:	10T 5C
Radial wheels:	11T 10C
Total:	53T 5C
Water capacity:	
side tanks:	1,072gal
bunker tank:	344gal
Total:	1,416gal
Coal capacity:	2¼ tons

Appendix 1
Preserved Locomotives

It was the desire to save Stroudley's classic 0-4-2 express passenger engine No 214 *Gladstone*, that commenced the now popular idea of purchasing locomotives for private preservation. The creation of the Southern Railway in 1923 in no way diminished the 'Brighton', and Stroudley, following amongst railway enthusiasts. Members of the Stephenson Locomotive Society (SLS), upon hearing that *Gladstone* was to be withdrawn, clubbed together the princely sum of £140 to purchase the locomotive! This price included the cost of restoration to its original attractive colours. In 1927 the locomotive was exhibited in London, and then sent north to be given into the care of the former Railway Museum at York – somewhat far from its normal territory; but safe. When the new National Railway Museum (NRM) was opened, it crossed the main lines to be placed in Leeman Road on the site of the old steam depot. It has made one excursion since then, to the Bluebell Railway, where it was a static exhibit from March to October 1982 as part of the Bluebell line's centenary celebrations; the journey to and from York being made by road.

The 'Terriers', next to the LMSR Stanier 'Black Fives' in the preservation polls, can attribute their fortunate survival to relatively low cost of purchase and their extremely high popularity. The Southern Railway led the field itself, in 1947 when No 82 *Boxhill* was preserved and restored in all its Stroudley finery and exhibited at Dorking North and Waterloo as part of the Waterloo centenary celebrations. Apart from occasional exhibitions, *Boxhill* spent most of its time in store, (including a spell at Tweedmouth, of all unlikely places, in 1958), until finally finding a home at the Museum of British Transport at





Above:
Photographed in Battersea shed yard on 21 May 1927, No 214 *Gladstone* is seen in the superb exhibition finish that the Southern Railway produced for the sum of £140, after the locomotive had been purchased for private preservation by the Stephenson Locomotive Society. It is now in the National Railway Museum collection at York. *LPC*

Left:
The white chalk and wooded slopes of Box Hill, the famous Surrey beauty spot make an appropriate background to 0-6-0T 'Terrier' No 82 *Boxhill*, on exhibition at Dorking North station in 1947, with Bulleid's electric locomotive No CC2 adjacent. The SR restored this locomotive to Class A1 LBSCR condition at a time when many others were still in busy everyday revenue-earning service! *Boxhill* now resides in the NRM at York. *S. C. Townroe*

Clapham Common – not far from its old hunting-grounds. It was moved to the NRM at York as part of the general transfer when Clapham was closed. Thus both *officially* preserved Stroudley locomotives are now located some distance from the area for which they were designed and built to work in.

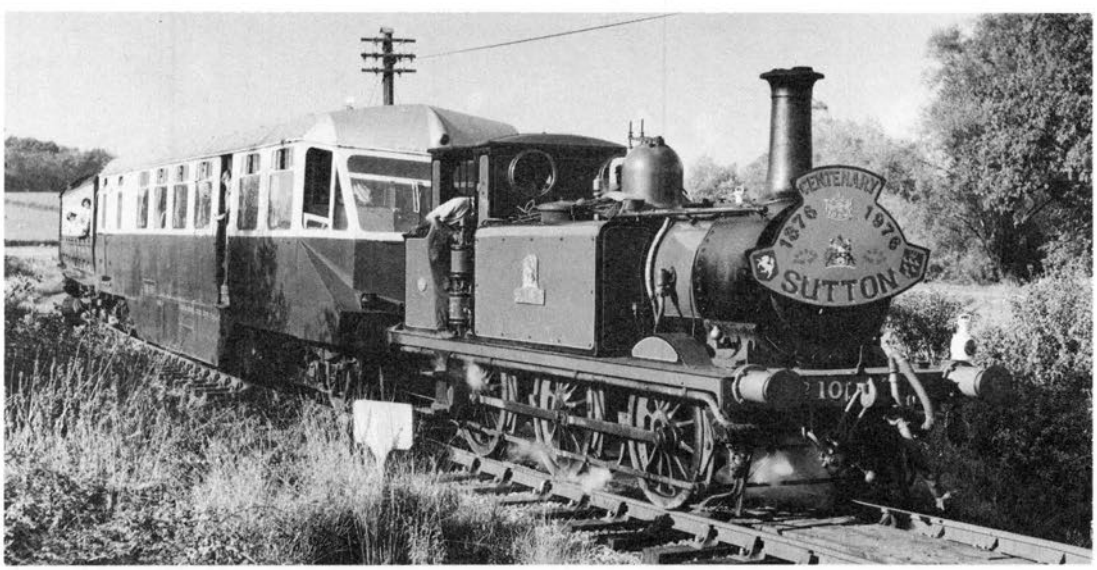
The Bluebell Railway, which was created to preserve a typical LBSCR branch line closed by British Railways, quickly seized its chance with No 55 *Stepney* in 1960, purchased in full running order for £500, to be followed by No 72 *Fenchurch*, also in running order for £750 in 1964. *Fenchurch* appeared on the market together with the remaining six survivors of the class late in 1963 after the closure of the Hayling Island branch line. As a result 'Terriers' were bought by several bidders, including one for the Kent & East Sussex Railway (No 70 *Poplar*); one for eventual static exhibition in Sutton Town Centre (No 50 *Whitechapel*) and one for the Sadler Rail Car Co for use on the West Meon line, (No 46 *Newington*.) Earlier, in June 1963, one had been purchased for a museum in Canada (No 54 *Waddon*.) The remaining three survivors were quickly snapped up by Sir Billy Butlin, for display at three of his holiday camps, as follows: No 40 *Brighton* went to Pwllheli, No 62 *Martello* went to Heads of Ayr, and No 78 *Knowle* went to Minehead. (In all cases above I have quoted their original LBSCR number and name, although some were received by their new owners whilst still with BR livery and numbering.) The locomotive destined for display at Sutton was loaned to the Kent & East Sussex Railway. It should be noted, however,

Below:
The Bluebell Railway obtained No 32655, a Class A1X 'Terrier' in 1960, and repainted it in Stroudley livery as No 55 *Stepney*; a wise publicity move because the engine became popular with the public on account of its colour scheme and name. (As an 'A1X' it should strictly-speaking have been in Marsh umber brown and without name.) No 55 *Stepney* is seen here double-heading R. J. Billinton's Class E4 0-6-2T No 473 *Birch Grove*, also purchased for preservation by the Bluebell; the train is the 2.55pm from Sheffield Park to Horsted Keynes and is seen approaching Freshfield on 17 October 1964. *G. D. King*

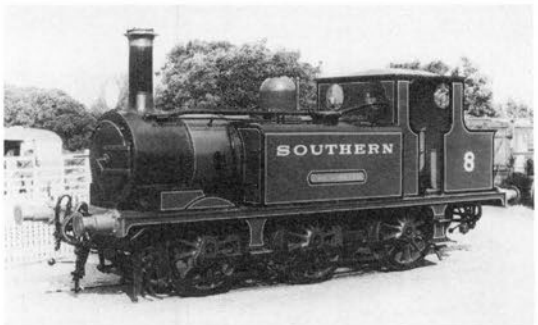
Right:
A proud day indeed for Class A1X 'Terrier' No 3 *Bodiam* of the Kent & East Sussex Railway, when celebrating her centenary on 4 November 1972. Originally No 70 *Poplar* the engine has long been associated with this rural Kentish railway, having been purchased from the LBSCR way back in 1901, (when it had already run 664,108 miles since built)! Seemingly indestructible, the little engine has a shiny coat of KESR green and in appearance completely belies its true age. The Mayor of Tenterden and the Chairman of the KESR are being given a ride on the footplate at Rolvenden. *Kent Messenger*

Below right:
Another centenary on the Kent & East Railway took place on 26 September 1976 with No 10 *Sutton*, the locomotive owned by the Borough of Sutton and Cheam, and on loan to the KESR. Actually this Class A1X was No 32650 in BR days, and originally LBSCR Class A No 50 *Whitechapel* (built in 1876) but the engine has now assumed the name of No 61 *Sutton*, which however was built in 1875! Nonetheless, the 'new' *Sutton* makes an attractive picture as it approaches Rolvenden with an afternoon train. Coupled next to the 'Terrier' is former GWR diesel railcar No 20, added in order to provide extra seats and forming a distinctly odd combination! *Brian Stephenson*

1872-1972
Nº 3
"BODIAM"
CENTENARY


CENTENARY
1876
1976
SUTTON

FENCHURCH



Left:
A struggle for adhesion on the KESR, on the climb to Tenterden Town, with Class A1X 'Terrier' No 72 *Fenchurch* caught by the camera at an anxious moment. The 'Terrier' was on loan to the Kent & East Sussex Railway, from the Bluebell, when this picture was taken on 19 September 1981, and it is seen double-heading 'USA' class 0-6-0T No 22 *Maunsell* on the heavily-laden 13.10pm from Wittersham Road. *Brian Stephenson*

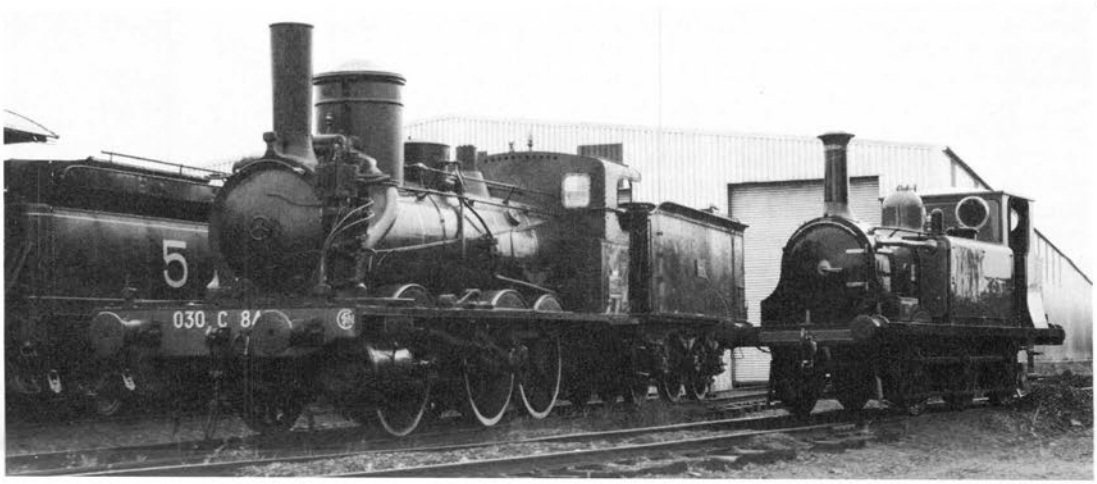
Above:
Once again resplendent in Maunsell's green livery of prewar SR days, Class A1X 'Terrier' No W8 *Fishbourne* makes a lovely picture, standing at Haven Street, on the Isle of Wight. Originally No 46 *Newington* it had been owned by the Sadler Rail Car Co, and then Brickwoods Brewery (who used it as a 'life-size' pub sign) before being handed-over by Whitbread's Brewery to the Isle of Wight Locomotive Society. *P. Relf*

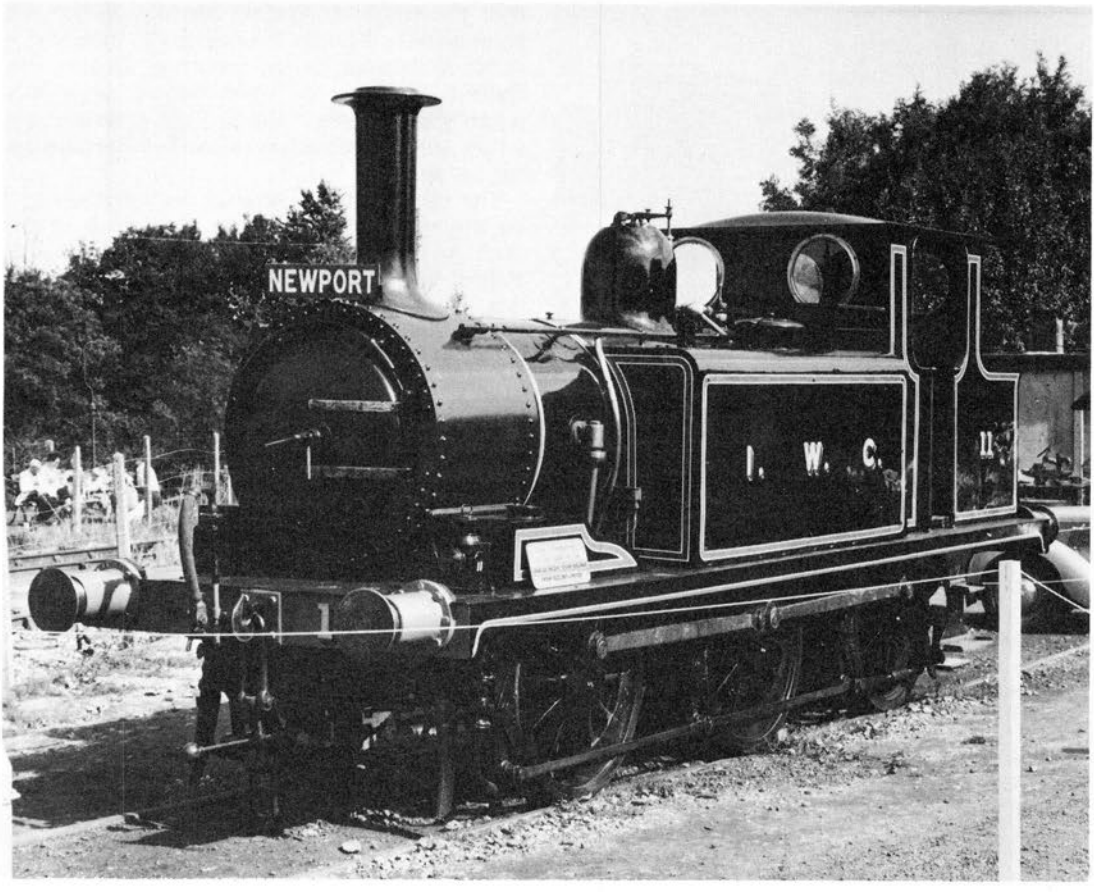
Below:
Stroudley's 'Terriers' first rubbed shoulders with their French neighbours across the Channel when No 40 *Brighton* was sent to the Paris exhibition in 1878, where it won a gold medal. What would Stroudley have said, one wonders, if he had lived to see *this* picture, with his neat little No 54 *Waddon* standing alongside an ex SNCF 0-6-0 No 030 C841 at the Canadian Railway Museum in Montreal? The two locomotives make an interesting study in contrasting aesthetics, with the clumsy stovepipe chimney, and 'dustbin and lid' dome of the French locomotive, and the elegant copper cap chimney and dome of the 'Terrier'.
Canadian Railway Museum

that the original 'Terrier' No 61 *Sutton* was scrapped by BR, and the preserved locomotive is No 50 *Whitechapel*, renamed *Sutton*. The Butlins locomotives were 'saved' at a time when money was hard to find privately and when preserved private railways were few and far between.

The story of the 'Terriers' did not end there by any means! Since then two have drifted back to haunts of earlier days on the Isle of Wight, (Nos 40 *Brighton* and 46 *Newington*, as Isle of Wight Central Railway No 11 and Southern Railway No W8 *Freshwater*, respectively). Prior to going to the Isle of Wight, No 46 *Newington* spent some years as a life-size pub sign for the 'Hayling Billy' public house on Hayling Island, having been purchased by Brickwoods Brewery in 1966. Others have similarly changed homes, and some will continue to do so, if only temporarily, as in the case of the Bluebell Railway's No 72 *Fenchurch*, which has paid visits to the Kent & East Sussex Railway in recent years. Incidentally, the latter 'Terrier' was the only 'Brighton' locomotive to appear in the 1975 Shildon cavalcade, and the LBSCR was for some reason unrepresented at the Rainhill celebrations four years later.

One preserved Stroudley locomotive generally overlooked, and for long out of the public gaze is former No 110 *Burgundy*, a Class E1 0-6-0T. This was the 100th locomotive to be built by the great man, and to celebrate the occasion Stroudley regaled the Works Foreman and others to a dinner at the Brighton Royal Pavilion, where the toast of 'The 100th Loco' was drunk in the wine of that name. This loco was sold by the SR to the Cannock & Rugeley Colliery in 1927; one of a number of the class that had become surplus to requirements. (The colliery company paid £925 for the locomotive, which seems a high price when compared to the cost of preserving *Gladstone*!) It became their No 9 *Cannock*



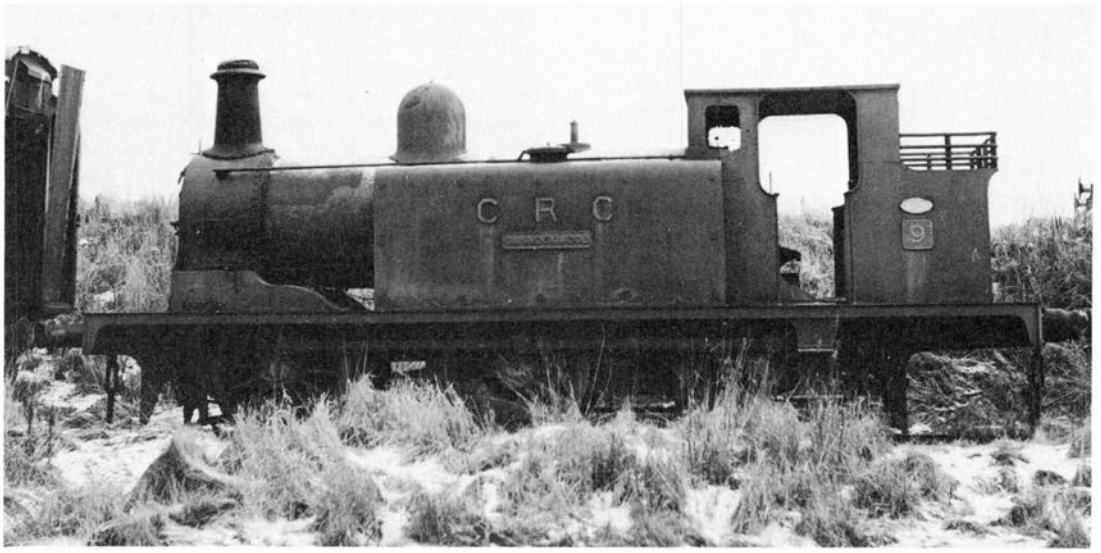


Above:
Old No 40 *Brighton*, Stroudley's 1878 Paris Exhibition gold medallist still exists! In Class A1X form, and now wearing the black livery, with red and white lining of the Isle of Wight Central Railway, as IWCR No 11, it once again sports a 'local style' chimney. This is one of the three 'Terriers' saved from the scrap-dealer by the generous action of Sir Billy Butlin, and it spent some time as a static exhibit at his Pwllheli holiday camp. *John Goss*

Wood and continued in existence (having received a new boiler in the late 1920s,) long enough to be saved by the West Midlands Railway Preservation Society in 1963, when it was stored in a decrepit state at their Hednesford depot. In view of its deteriorating condition, involving vast repair costs, it was offered for sale in 1978 to raise much needed funds for the Chasewater Railway, and a private consortium purchased it and moved it down to East Somerset where it still awaits a major overhaul and proper Stroudley details. Another Class E1, on the Isle of Wight, (No W4, formerly *Wroxall* and originally No 131 *Gournay* was considered by the Bluebell

LBSC No.	*Name*	*Last BR No.*	*Prese No.*
40	*Brighton*	32640	11
46	*Newington*	32646	W8
50	*Whitechapel*	32650	10
54	*Waddon*	DS680	54
55	*Stepney*	32655	55
62	*Martello*	32662	662
70	*Poplar*	32670	3
72	*Fenchurch*	32636	
78	*Knowle*	32678	678
82	*Boxhill*	380S	82
110	*Burgundy*		9
214	*Gladstone*		214

*Certain liveries described above are of a temporary



Railway in 1962, but could not be purchased due to lack of funds, and was scrapped by BR.

The table below lists the preserved Stroudley locomotives, with no less than 10 of them being 'Terriers'. How fortunate that *Gladstone* has survived, to show us an example of his express passenger design, but what a pity the balance can not be fully restored by examples of his 'D–tanks', 'Singles' or 0-6-0 goods engines, in order to give a proper coverage of the remarkable designs of a remarkable engineer.

Above:
Least well known, and for the moment at least, not very presentable, is the Class E1 0-6-0T, originally No 110 *Burgundy*. A major task of restoration will be involved in bringing back its former appearance, but it is a worthwhile candidate in view of its rarity. Pictured here in (very cold!) store at Hednesford, it has since been moved to East Somerset. The chimney and boiler bear no relation to Stroudley's original design, and the cab has been altered (see also page 76), but underneath it all lies the spirit of the 100th locomotive built to Stroudley's design at Brighton Works! It is seen in the guise of Cannock & Rugeley Colliery Co No 9 *Cannock Wood*. *T. Cousens*

Name	*Location*	*Owner*	*Livery**
–	Haven Street	Wight Loco Society	IWC black
Freshwater	Haven Street	Wight Loco Society	Southern green
Sutton	Rolvenden	Borough of Sutton & Cheam	KESR green
Waddon	Montreal	Canadian Historical Association	Stroudley golden ochre
Stepney	Sheffield Park	Bluebell Railway	Stroudley golden ochre
	Bressingham	Butlins Ltd/ Alan Bloom	Marsh umber
Bodiam	Rolvenden	KESR	BR black
Fenchurch	Sheffield Park	Bluebell Railway	Stroudley golden ochre
	Erith, Southfleet	Resco (Railways) Ltd.	Being restored
Boxhill	York	NRM	Stroudley golden ochre
Cannock Wood	Cranmore	ESR Private consortium	Being restored
Gladstone	York	NRM	Stroudley golden ochre

nature, and may well have altered by the time this book appears in print.

Appendix 2
Named Locomotives

William Stroudley favoured bestowing names upon the LBSCR's locomotives; not only his own, but also those he rebuilt or modified, dating from Craven's time. It is difficult to imagine, for example, that his little 'Terriers' would have caught the public imagination so well, if they had been anonymous. A name gives a personality to a locomotive in a way that a mere number can never achieve, and it is recorded, for example, that many elderly SR employees in the 1920/30s were still calling Stroudley locomotives by their former names – years after they had been painted out by D. E. Marsh! Even today some of Stroudley's names are common parlance in railway circles, because of the preserved locomotives that once again proudly carry them.

I have already discussed the Brighton's practice of naming, and noted some slight errors and problems, and here I would only add that study of the names chosen for the various Stroudley-designed classes shows that, to some extent, the size of the available area – wheel splasher or tankside – seems to have dictated the *length* of name chosen!

In the list that follows, the original name and number are shown, followed where necessary by a note, with dates, of any change. Nameplates were used in Southern Railway days on the Isle of Wight, but in LBSCR practice the names were always applied by hand, (although *perhaps* some gilt transfers were used, suitably retouched), and some spelling errors occurred! The locomotives sold out of service for further use on Light railways, collieries, etc., often carried new names, and these are detailed in each relevant Section of the book; they are not listed again below. The early rebuilds by Stroudley, and the names he gave to existing Craven-era locomotives are not listed.

Named Stroudley – built locomotives in LBSCR/SR/BR service

2-4-0 'Belgravia' Class B (See Section 3)

201 *Belgravia*
202 *Goodwood*
204 *Westminster*
205 *Kensington*
206 *Carisbrooke*
207 *Freshwater*

Below:
An important part of the striking Stroudley livery was the locomotive name, in gold letters shaded to the right in black and to the left in white struck with carmine red and sea green. The first letter of the name was slightly larger than the rest. On No 40 *Brighton* an additional inscription recorded its Paris gold medal of 1878, for some years afterwards. *LPC*

0-6-0T 'Terrier' or 'Rooter' Class A (See Section 4)

35 *Morden*
36 *Bramley*
37 *Southdown*
38 *Millwall*
39 *Denmark*
40 *Brighton*[1]
41 *Piccadilly*
42 *Tulsehill*
43 *Gipsyhill*
44 *Fulham*
45 *Merton*
46 *Newington*[2]
47 *Cheapside*
48 *Leadenhall*
49 *Bishopsgate*
50 *Whitechapel*[3]
51 *Rotherhithe*
52 *Surrey*
53 *Ashtead*
54 *Waddon*
55 *Stepney*
56 *Shoreditch*
57 *Thames*
58 *Wandle*
59 *Cheam*
60 *Ewell*
61 *Sutton*
62 *Martello*
63 *Preston*
64 *Kemptown*
65 *Tooting*
66 *Hatcham*
67 *Brixton*
68 *Clapham*
69 *Peckham*[4]
70 *Poplar*
71 *Wapping*
72 *Fenchurch*
73 *Deptford*
74 *Shadwell*
75 *Blackwall*
76 *Hailsham*
77 *Wonersh*[5]
78 *Knowle*[6]
79 *Minories*
80 *Bookham*
81 *Beulah*
82 *Boxhill*
83 *Earlswood*
84 *Crowborough*[7]

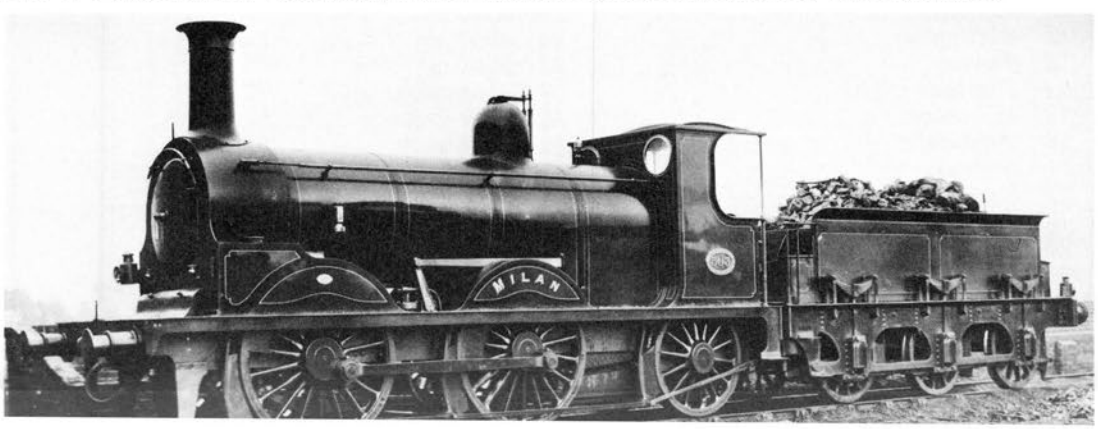
Note: Isle of Wight names: [1]W11 *Newport*; [2]W8 *Freshwater*; [3]W9 *Fishbourne*; [4]W10 *Cowes*; [5]W13 *Carisbrooke*; [6]W14 *Bembridge*; [7]W12 *Ventor*.

0-4-2T 'D-Tanks' Class D (See Section 5)

1 *Sydenham*
2 *Wandsworth*
3 *Battersea*
4 *Mickleham*
5 *Streatham*
6 *Wimbledon*
7 *Bermondsey*
8 *Brockley*
9 *Anerley*
10 *Banstead*
11 *Selhurst*
12 *Wallington*
13 *Pimlico*
14 *Chelsea*
15 *Brompton*
16 *Silverdale*
17 *Dulwich*
18 *Stockwell*
19 *Belmont*
20 *Carshalton*
21 *Beddington*
22 *Addington*
23 *Mayfield*
24 *Brambletye*
25 *Rotherfield*
26 *Hartfield*
27 *Uckfield*
28 *Isfield*
29 *Lambeth*
30 *Camberwell*
31 *Borough*
32 *Walworth*
33 *Mitcham*
34 *Balham*
35 *Southwark*
36 *New Cross*
221 *Warbleton*
222 *Cuckmere*
223 *Balcombe*
224 *Crowhurst*
225 *Ashburne*
226 *Westham*

227 *Heathfield*
228 *Seaford*
229 *Dorking*
230 *Brookhouse*
231 *Horsham*
232 *Lewes*
233 *Handcross*
234 *Rottingdean*
235 *Broadwater*
236 *Ardingly*
237 *Cuckfield*
238 *Lindfield*
239 *Patcham*
240 *Ditchling*
241 *Stanmer*
242 *Ringmer*
243 *Ovingdean*
244 *Hassocks*
245 *Withdean*
246 *Bramber*
247 *Arlington*
248 *Ashurst*
249 *Hilsea*
250 *Hoathly*
251 *Singleton*
252 *Buckhurst*
253 *Pelham*
254 *Hambledon*
255 *Willingdon*
256 *Standford*
257 *Brading*
258 *Cosham*
259 *Telford (Barnham* 4/1898)
260 *Lavington*
261 *Wigmore*
262 *Oxted*
263 *Purley*
264 *Langston*
265 *Chipstead*
266 *Charlwood*
267 *Maresfield*
268 *Baynards*
269 *Crawley*
270 *Warnham*
271 *Eridge*
272 *Nevill (Goring* 7/97)
273 *Dornden*
274 *Guildford*
275 *Cranleigh*
276 *Rudgwick*
277 *Slinfold*
278 *Groombridge*
279 *Tunbridge Wells*
280 *Grinstead*
281 *Withyham*
282 *Rowfant*
283 *Aldgate*
284 *Ashburnham*
285 *Holmwood*
286 *Ranmore*
287 *Buryhill*
288 *Effingham*
289 *Holmbury*
290 *Denbies*
291 *Deepdene*
292 *Leigham*
293 *Norbury*
294 *Rosebery (Falmer* 3/1897)
295 *Whippingham*
296 *Osborne (Peckham* 12/1901)
297 *Bonchurch*
351 *Chailey*
352 *Lavant*
353 *Keymer*
354 *Lancing*
355 *Worthing*
356 *Coulsdon*
357 *Riddlesdown*
358 *Henfield*
359 *Egmont*
360 *Leconfield*
361 *Upperton*
362 *Kidbrooke*

2-2-2 'Grosvenor' Class B, later Class G (See Section 6) 326 ***Grosvenor***



0-6-0T 'E–Tanks' Class E (See Section 7)

85 *Cannes*
86 *Geneva*
87 *Bologna*
88 *Rhine*
89 *Brest*
90 *Berne*
91 *Fishbourne*
92 *Polesden*
93 *Calbourne*
94 *Shorwell*
95 *Luccombe*
96 *Salzberg*
97 *Honfleur*
98 *Marseilles*
99 *Bordeaux*
100 *Calvados*
101 *Orleans*
102 *Cherbourg*
103 *Normandy*
104 *Brittany*
105 *Morlaix*
106 *Guernsey*
107 *Alderney*
108 *Jersey*
109 *Strasbourg*
110 *Burgundy*
111 *Montpelier*
112 *Versailles*
113 *Granville (Durdans 12/83)*
114 *Trouville*
115 *Lorraine*
116 *Touraine*
117 *Florence*
118 *Trocadero*
119 *Rochelle*
120 *Provence*
121 *Verona*
122 *Leghorn*
123 *Seine*
124 *Bayonne*
125 *Navarre*
126 *Gascony*
127 *Potiers*
128 *Avignon*
129 *Alencon*
130 *Rennes*
131 *Gournay*[1]
132 *Epernay*
133 *Picardy*
134 *Ancona*
135 *Foligno*
136 *Brindisi*[2]
137 *Dijon*
138 *Macon*
139 *Lombardy*
140 *Toulouse*
141 *Mentone*
142 *Toulon*
143 *Nuremberg*
144 *Chambery*
145 *France*
146 *Havre*
147 *Danube*
148 *Vienna*
149 *Lucerne*
150 *Adriatic*
151 *Helvetia*
152 *Hungary*[3]
153 *Austria*
154 *Madrid*[4]
155 *Brenner*
156 *Munich*
159 *Edenbridge*
160 *Portslade*
161 *Aldrington*
162 *Southwater*
163 *Southwick*
164 *Spithead*

Note: Isle of Wight names: [1]W4 *Wroxall;* [2]W1 *Medina;* [3]W2 *Yarmouth;* [4]W3 *Ryde.*

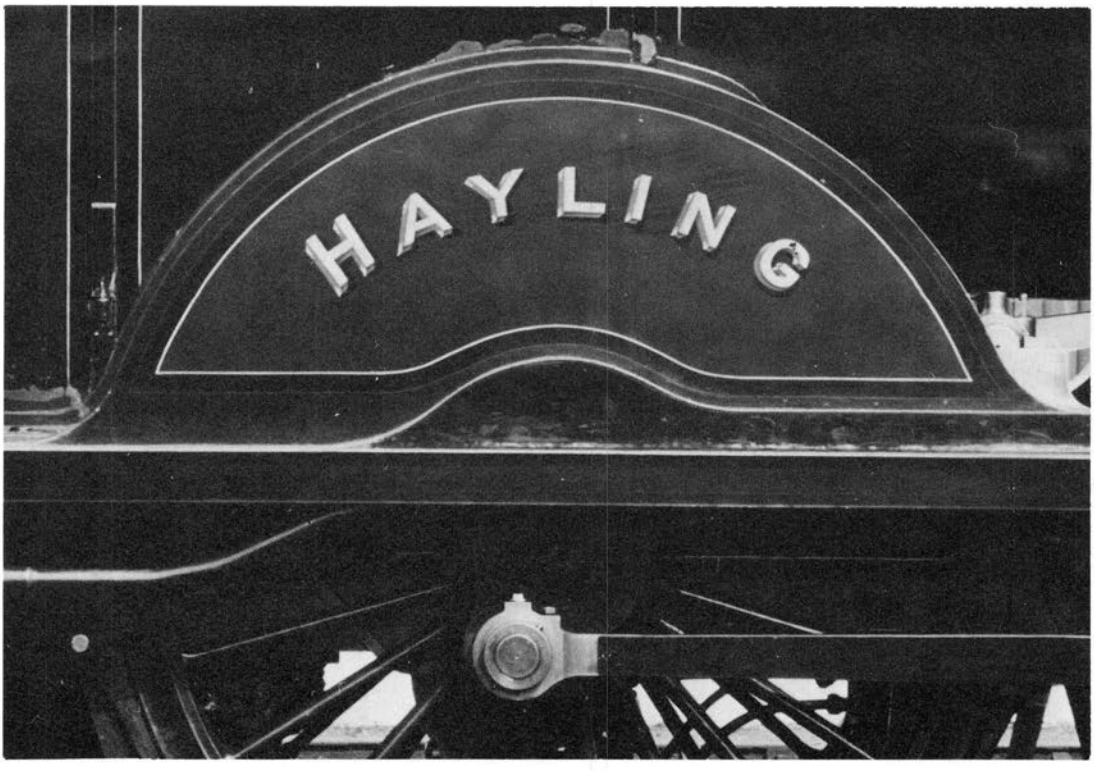
Left:
The small splashers of 5ft 6in coupled wheels of the 'Lyons' class 0-4-2s meant that only five or six letter names could be accommodated with ease. Illustrated is No 303 *Milan*; with a Craven tender attached, photographed at Fratton shed in 1901. *Ian Allan Library/Bucknall collection*

2-2-2 'Abergavenny' Class F, later Class G (See Section 8)

325 ***Abergavenny***

0-4-2 'Lyons' Class D later Class D2 (See Section 9)

300 *Lyons*
301 *Caen*
302 *Turin*
303 *Milan*
304 *Nice*
305 *Genoa*
306 *Naples*
307 *Venice*
308 *Como*
309 *Splugen*
310 *Laval*
311 *Rhone*
312 *Albion*
313 *Paris*



Above:
Close-up of the rear driving wheel splasher of Stroudley's 'Gladstone' class 0-4-2 No 175 *Hayling* showing the typical arrangement for a splasher; a rather more cramped area for a name than that offered by the side of a tank engine! *LPC*

0-4-2 'Richmond' Class B (See Section 10)

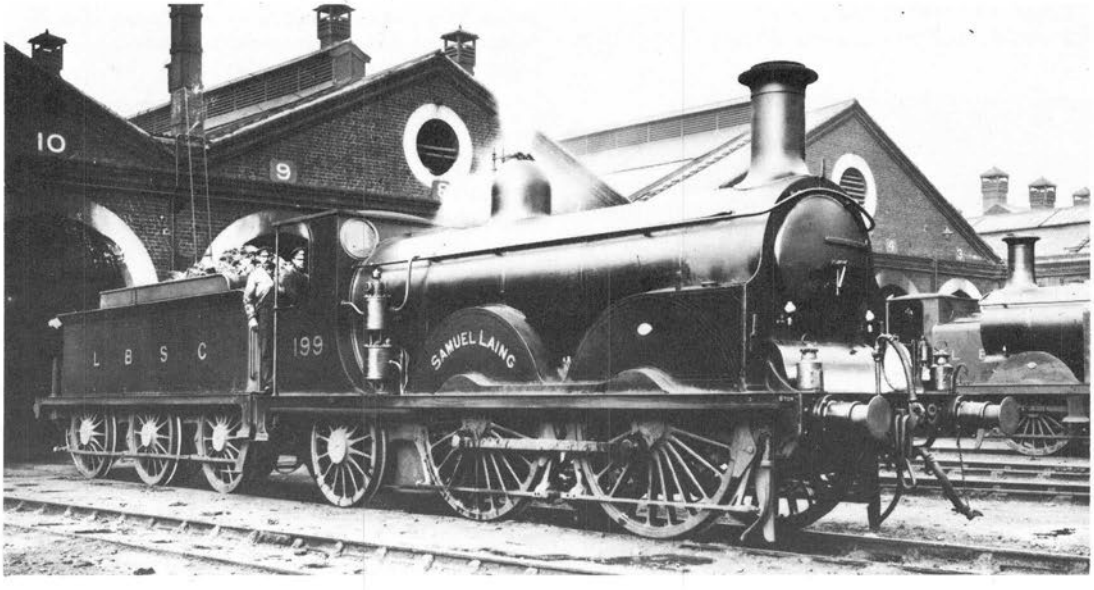
208 *Richmond*
209 *Devonshire*
210 *Cornwall (Belgravia* 10/01)
211 *Beaconsfield (Cavendish* 11/85)
212 *Hartington*
213 *Norfolk*

2-2-2 'Singles' Class G (See Section 11)

327 *Imberhorne*
328 *Sutherland*
329 *Stephenson*
330 *Newhaven*
331 *Fairlight*
332 *Shanklin*
333 *Ventnor*
334 *Petworth*
335 *Connaught*
336 *Edinburgh*
337 *Yarmouth*
338 *Bembridge*
339 *London*
340 *Medina*
341 *Parkhurst*
342 *St Lawrence*
343 *Wilmington*
344 *Hurstmonceux*
345 *Plumpton*
346 *Alfriston*
347 *Dallington*
348 *Lullington*
349 *Albany*
350 *Southbourne*

0-4-2 'Gladstones' Class B, later Class B1 (See Section 13)

172 *Littlehampton*
173 *Cottesloe*
174 *Fratton*
175 *Hayling*
176 *Pevensey*
177 *Southsea*
178 *Leatherhead*
179 *Sandown*
180 *Arundel*
181 *Croydon*
182 *Hastings*
183 *Eastbourne*
184 *Carew D. Gilbert (Stroudley 9/06)*
185 *George A. Wallis*
186 *De la Warr*
187 *Philip Rose*
188 *Allen Sarle*
189 *Edward Blount*
190 *Arthur Otway*
191 *Gordon-Lennox*
192 *Jacomb-Hood*
193 *Fremantle*
194 *Bickersteth*
195 *Cardew*
196 *Ralph L. Lopes*
197 *Jonas Levy*
198 *Sheffield*
199 *Samuel Laing*
200 *Beresford*
214 *Gladstone*
215 *Salisbury*
216 *Granville*
217 *Northcote*
218 *Beaconsfield*
219 *Cleveland*
220 *Hampden*



Above:
Whereas R. J. Billinton was content to continue with Stroudley's livery style and with the custom of naming locomotive, the next in line at Brighton, D. E. Marsh waved the wand of change. He introduced his more sombre, but extremely hard-wearing umber brown livery, and removed nearly all the names from locomotives as they passed through the works for repainting. For reasons not always absolutely clear, a *few* escaped anonymity, such as 'Gladstone' class 0-4-2 No 199 *Samuel Laing* seen here. In umber livery, the locomotive also shows alterations by R. J. Billinton and D. E. Marsh; the tender modification with increased fuel capacity was made by L. B. Billinton.
LPC

0-6-0T 'Barcelona' Class E (special) (See Section 14)

157 ***Barcelona***

0-6-2T 'West Brighton' Class F (See Section 15)

158 ***West Brighton***

Bibliography

The following books, which were referred to in the course of compiling this pictorial history, are thoroughly recommended to the reader in search of further information about William Stroudley, and his locomotives.

First, and foremost, the three-part history entitled *Locomotives of the LB&SCR* by D. L. Bradley and published by the Railway Correspondence & Travel Society (RCTS) must be mentioned. Volumes 1 and 2 of this describe Stroudley's locomotives in a remarkable wealth of insight and detail. Volume 3 takes up the story of the LB&SCR in its later days, and provides a good contrast to the conditions prevailing in Stroudley's time.

Other books are as follows:

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Cooper, B. K. *Rail Centres: Brighton,* Ian Allan Ltd.

Dendy Marshall, C. F. *History of the Southern Railway* (revised by R. W. Kidner); Ian Allan Ltd.

Hamilton Ellis, C. *Twenty Locomotive Men,* Ian Allan Ltd.

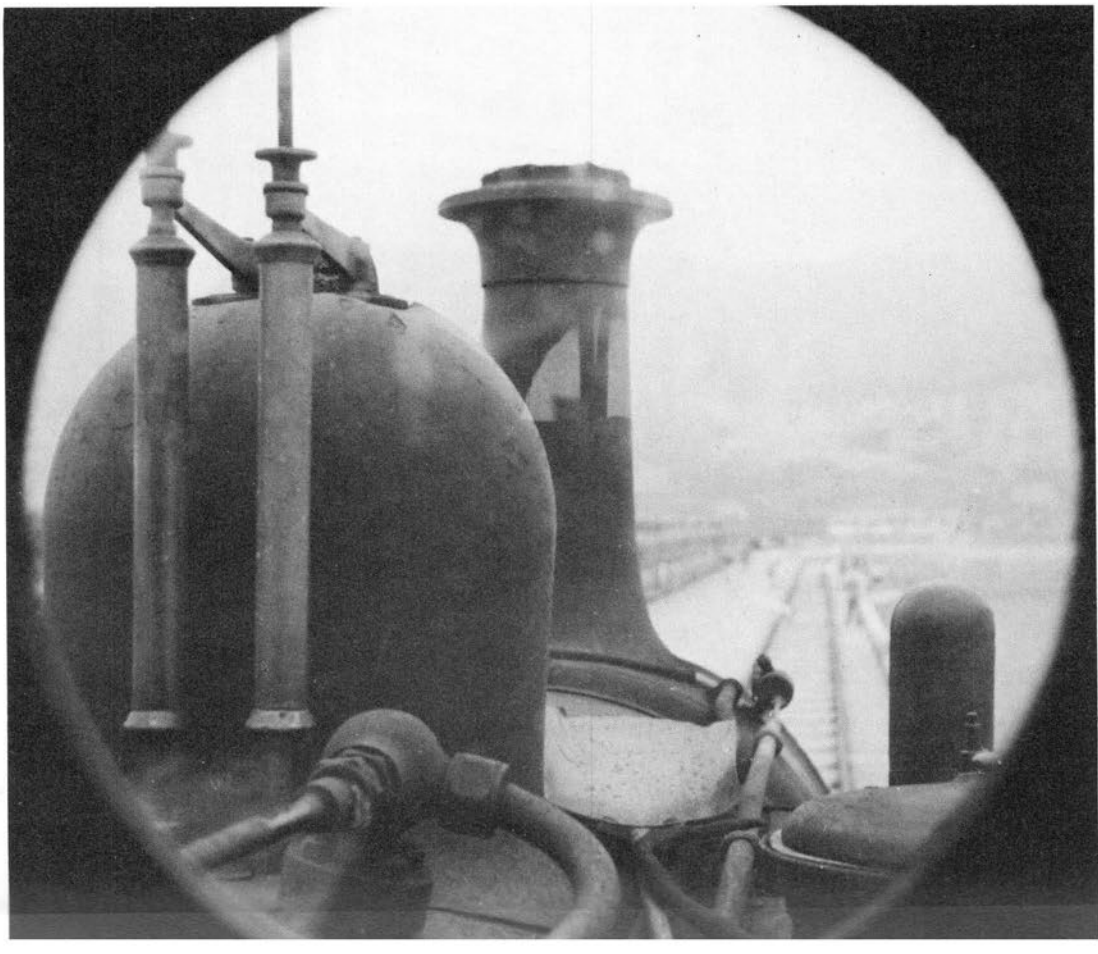
Hamilton Ellis, C. *The London Brighton & South Coast Railway,* Ian Allan Ltd.

Marx, Klaus. *London Brighton & South Coast Railway Album,* Ian Allan Ltd.

Maskelyne, J. N. *Locomotives I have known* and *Further Locomotives I have known,* Percival Marshall Ltd.

Reed, Brian *The Brighton Gladstones,* Profile Publications Ltd.

Below:
An interesting view of the erstwhile Newhaven West quay branch (actually on the breakwater section), seen through the cab window of Class A1X 'Terrier' 0-6-0T No 2636 (old No 72 *Fenchurch*) in August 1937. The Stroudley dome and safety valves remain, but a cast iron Marsh chimney is carried. Note the firing shovel on the boiler top, and the firebox pricker, wedged against the boiler handrail.
C. C. B. Herbert



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